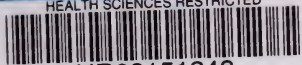


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PEDIATRICS

FREDERIC W. LOUGHRAN, M. D., EDITOR
NEW YORK

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PEDIATRICS

A MONTHLY JOURNAL DEVOTED TO THE STUDY OF
DISEASE IN INFANTS AND CHILDREN.

EDITED BY

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VOLUME NO. XXI. JANUARY TO DECEMBER, 1909.

PUBLISHED BY

PEDIATRIC PUBLISHING COMPANY,

320 MANHATTAN AVE., NEW YORK.

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PEDIATRICS

Vol. XXI

JANUARY, 1909

No. 1

ORIGINAL ARTICLES

THE DIAGNOSIS OF SCARLET FEVER.*

BY EWING BROWN, M. D.,

OMAHA, NEB.

The symptoms which make up the diagnosis of any infectious disease are best studied along with the etiology. For, while we have the general systemic manifestations, certain local symptoms are changed by the mode of infection. We only know scarlet fever as an infectious disease, but whether due to bacteria, (perhaps a variety of the streptococcus) or a protozoa we have no certain evidence and must await further investigations. While it is a question as yet whether or not streptococci are responsible for the infection, or an increased or mixed infection, it is true they are almost constantly found, and must be considered in the etiology of the disease, or at least of the local symptoms. It would seem that we have three avenues by which the poison gains entrance to the system. First, by way of the tonsil. Second, through the nasal mucous membranes. Third, extrabuccal infections. In the great majority of cases the primary infection in scarlet fever is by way of the tonsil. The local inflammation varies from simple redness and swelling or a more severe follicular tonsillitis to more or less necrosis, and the throat symp-

*Being part of a symposium on Scarlet Fever, read at Omaha, Neb., Oct. 12, 1908.

toms seem to be governed in some degree by the severity of the primary infection. The throat symptoms are by far the most constant lesions in this disease, and when they occur without the usual rash, an early diagnosis of scarlet fever is often not made, and the infection may then be carelessly spread to others. Second, infection by nasal mucosa,—while primary infection by way of the nasal passages does sometimes occur, the majority of such cases are as an extension from the pharynx. So that tube, ear and naso-pharynx involvements are really primary infection, complications, nasal muco-purulent discharges and obstruction to respiration usually coming on after a few days. The enlarged lymph glands at the angle of the maxilla are symptomatic, merely indicating the distribution of the infection along the lymphatics. A third mode of infection is called extrabuccal infections. We may have the primary infections through an abrasion or incision of the skin. Or any wound upon the body surface may be the primary focus, and it is interesting to note that in these cases the tonsillitis and throat symptoms were usually ill-defined. The first symptoms which we notice are those produced by the local infection, lassitude, fever and sore throat. These may be extremely mild, seem to indicate no more than some minor disorder, as an ordinary tonsillitis. With these early symptoms the throat should be very carefully examined in order to establish an early diagnosis, even if we have as yet none of the more characteristic symptoms. As yet we do not have the general exanthem, but the mucous membrane of the back portion of the mouth may be reddened, and in a good light puncta may perhaps be seen on the roof of the mouth. The extremely dark redness of the tonsil helps to differentiate from diphtheria and the absence of Koplik spots from measles.

Quickly following these local infection symptoms we have a group of constitutional toxic symptoms, perhaps brought about by a reaction of the system to the toxins and of greater diagnostic value. The four chief diagnostic points now are, fever, tachycardia, vomiting and rash. The fever begins with the

initial infection, increases gradually to the third or fifth day, and usually terminate by lysis. The temperature is not usually excessively high, may present great variations, and is in no way diagnostic of the disease. The pulse rate is proportionately higher at the onset of scarlet fever than any of the other erythematous diseases, being usually increased by $\frac{1}{2}$ to $\frac{2}{3}$ of the normal pulse rate of the child's age. The vomiting is nearly always present early and of short duration, persistent nausea being of bad diagnostic import. Convulsions in young children and rigors in older children and adults often give warning of the onset. Within a few hours usually the rash appears, a punctate erythema, varying from a simple blush to a brilliant scarlet hue, accentuated on the axillae, groins and popliteal spaces. There is no eruption on the face as a rule, which appears pale, although the cheeks are red and the face has a striking appearance on account of pale upper and lower lips and the congested cheeks. The characteristic rash is so constantly present that we are apt to rely upon this too strongly for our diagnosis. Yet the absence of the rash is not uncommon, and it may be lacking or is overlooked, either in the very mild cases or in the anginose or atectic forms.

The throat lesions are the most constant. Mucous membrane red, dry and early swelling, spotted with red fine points, like the skin papulation, and the tongue the classical strawberry tongue. The membrane, when present on the tonsil may simulate diphtheria, but is softer or a more brownish tint and may need to be differentiated by a bacteriological examination. The incubation period is variable, from less than 24 hours to 3-7 or more days, and it is misleading to ourselves and the friends to consider an incubation period in the diagnosis, and it is questionable if the term as used here is of any special application.

Scarlet fever, as with diphtheria, might perhaps be considered more at first as a local infection, as a dissecting wound, but due to a special unknown virus. The intensity of scarlet fever is more varied than any other of the infectious diseases. Not only as regards different epidemics but also in individual

cases of the same epidemic. Few children are immune, except after an attack, and it is stated that the susceptibility is in an inverse ratio to the age.

Scarlet fever is a disease so treacherous, insidious and variable that every point in diagnosis should be fully considered. The patient should be isolated immediately until a negative diagnosis is made, bearing in mind that an apparently mild case in the beginning may be followed by the most severe complications and is fully capable of being the focus for the spreading of the most malignant cases.

It is not advisable to enter into the differential diagnosis as between the other infectious exanthemata or diphtheria, although a diagnosis at the first visit is often difficult or impossible in border line cases. In considering the rash we must bear in mind other skin conditions which may simulate a scarlet fever rash, such as those caused by irritation of the skin from hot or oily applications—drug rashes caused by quinia, iodine, belladonna, etc., heat rashes and a hyperaemic condition of the skin due to crying, also the rash following the injection of antitoxin.

Let us repeat a few of the principal points of diagnosis.

1st. The symptoms are best studied if they are considered as, first, those of the local infection, and second, toxic or constitutional manifestations.

2nd. A diagnosis of scarlet fever is often only made upon the appearance of the complications.

3rd. Errors in diagnosis occur most frequently in the very mild cases and in the very severe forms which are often soon fatal.

4th. The throat symptoms are the most constantly present.

5th. A hasty positive diagnosis should not be made upon either the skin or mouth and throat symptoms.

6th. A negative diagnosis should not be made until all index symptoms are otherwise accounted for, the patient being isolated until the desquamative stage if required in order to establish the diagnosis.

503 Brandeis Bldg.

THE TREATMENT OF SCARLET FEVER.*

BY B. W. CHRISTIE, M. D.,

OMAHA, NEB.

EXCLUDING THE MANAGEMENT OF CASE AS REGARDS ISOLATION,
PREVENTION OF CONTAGION AND THE HYGIENIC CARE OF THE
PATIENT, ALSO EXCLUDING THE TREATMENT OF THE
NOSE, THROAT AND EAR.

We have to deal with a self limited disease for which there is at present no specific treatment. While we agree that this disease as well as the vast majority of acute infectious diseases in children tends towards a spontaneous cure, still these processes which bring about an eradication of the infection can be assisted and stimulated not alone by proper hygienic surroundings, by hydro and physical therapy but also by a judicious and proper use of medicines.

For the purpose of classification and in order to make our matter more clear and concise, we will divide our subject as follows:

- I. The symptomatic treatment.
- II. The treatment of intercurrent complications and sequelae.
- III. The serum treatment.

We first find that the disease attacks directly the throat and the skin. The care of the skin has been taken up under the heading of "Management of Scarlet Fever" and we will only mention here that the purpose of all treatment along this line is directed towards getting rid of the scaly desquamation with as great speed as possible and prevention of injury to skin either by injudicious bathing or application of too strong antiseptics

*Being part of a symposium on Scarlet Fever, read at Omaha Medical Society, Oct. 12, 1908.

which together with the general weakened condition are liable to cause such skin troubles as eczema, seborrhea, etc. And at this time we wish to say that while we do not want to be considered as therapeutic nihilists, at the same time immense harm has been done in the past by too much and injudicious drugging. The majority of cases would do better if given the best of hygienic care without any medication, and yet, we find some cases that require prescribing of drugs.

In dismissing the care and treatment of the skin we must warn you again not to overdo it. If the child's skin becomes too dry by too excessive bathing and the use of too strong antiseptic ointments, use bran baths and discontinue your harmful irritant.

In taking up the treatment of the throat, we find ourselves encroaching upon the grounds of the paper bearing on the management of scarlet fever and also upon the paper of the nose, throat and ear specialist. However, we cannot forbear mentioning a few points. Here again, we will see many times the ill effects of over-treatment. Remember that the Eustachian tube is more patent and more horizontal in the child than in the adult, hence infection is more readily carried to the middle ear, and remember that the petrosquamosal suture is open in infancy, rendering an easy vascular connection with the meningeal blood vessels thus facilitating the possibility of a meningitis.

Before dismissing the symptomatic treatment we wish to mention our ideas in regard to the vomiting and the fever. The vomiting that occurs as a prodromal symptom is a nervous gastric disturbance due to the toxin of scarlet fever, and should be considered merely as Nature's effort to rid the child of the poison. No active treatment is necessary for this, except small pieces of ice given to the little patient which will quiet this in degree and will ease the fear of the parents. But do not give a purgative unless indicated. We think that the routine of giving every case of infectious disease an active purgative is a harmful one; it lessens resistance by weakening the patient and causes greater likelihood of bowel or stomach complications by its violent

action on the mucous membranes of these parts. If vomiting again establishes itself towards the end of the attack or after the patient's recovery from the disease *per se*, it is in many instances the initial symptom of an uraemia and proper proceedings should be taken to aid the kidneys.

In considering the fever, always remember that this symptom is not to be combated unless it threatens to get beyond control. A temperature of 104 degrees F. occurring for a short time during this disease is not necessarily an indication of trouble or a signal to begin active intervention. But where this temperature is continued for a few days and threatens to climb it warns us that something must be done besides masterful inactivity. Here, again, however, comes our old warning of over-treatment which consists, as a rule, in the use of the coal tar products. Unless the child becomes extremely nervous and irritable and temperature cannot be reduced by natural hydrotherapy, we should never use phenacetin and the like and even then they should be used sparingly and timidly.

In those cases of septicaemia where temperature continues for several days and patient presents a typical case of profound sepsis, no coal tar products should be given. These cases should be supported in every way possible, by rational stimulation, e. g. where pulse is weak and tension is low, digitalis should be used. Where there are present no kidney complications, the diet should be broadened to include more foods according to age and digestive ability of child. So many of these cases are starved and purged to death. In extreme cases of hyperpyrexia where albumin, casts and blood are present in large amounts, urine venesection and hypodermoclysis may be necessary. In long continued cases of this extreme septic type, the child's normal amount of sleep should be preserved as nearly as possible, even if it be necessary to resort to opiates. Sometimes the milder hypnotics will serve the purpose as well but here again comes the old warning, use neither the opiate nor hypnotic unless absolutely sure of their rational therapeutic indication.

The method of applying hydrotherapy for the reduction of temperature, is the same here as in other conditions, keeping in mind that the cold pack or cold tub bath is contraindicated in cases where skin is cold and temperature high, indicating cardiac weakness, in organic disease of the heart, dyspnea due to narrowing of air passages, hemorrhagic tendencies, infections in joints and in cases with kidney complications. However, we think that as a rule, the practitioner is too chary in the use of cold for purposes of reducing a high temperature in infants. They seem to respond more promptly to this method than adults and the reaction is as a rule excellent, because we have present no active organic lesions, suspected or unsuspected.

In closing our remarks in regard to the febrile treatment of this disease, we wish to emphasize the fact that the lighter cases of scarlet fever should receive no active intervention as to the hyperpyrexia and that when active interference is employed, it should be the form of hydrotherapy suited to the particular case and that medicines for this purpose should rarely be used.

In taking up the treatment of the complications and sequelae, we wish to say that we do not want you to consider that we will attempt to cover this subject in detail but that we will only deal with the broader phases of it.

The tissues most often affected by complications or as sequelae are the ear, and kidneys. The discussion of the case of the ear has been delegated to another, so that we will consider only the kidney. Together with empyema and otitis media we find that pyelitis and nephritis are most often missed in the diagnosis of diseases of children. But surely in scarlet fever, except in those cases where no physician has been called because of mildness of attack, can there be a legitimate excuse for lack of diagnosis of this important complication or sequelae. The patient during all attacks of scarlet fever should be placed upon a milk diet not only during attack but for at least ten days after its subsidence. We find that children below a year of age are less subject to the kidney complications due partly to the fact that milk and water constitute their entire diet or at least the

larger part of it. Water should be given freely. The skin and bowels should be kept as active as possible and the child should, in all cases, have plenty of fresh air, even if that air is cold, as plenty of oxygen aids the child in getting rid of its sepsis. In short, all the emunctories should be made active so as to relieve the kidneys of work. The skin should be kept active by daily warm baths, taking every precaution to prevent the child catching cold. The bowels should be kept in good shape by mild laxatives or better still by copious enemata of warm saline solution given twice daily. We are not advocates of such strong remedial measures as pilocarpin, except in extremis. Complete rest is indicated and by that we mean rest in bed.

Prognosis even in cases where there is an abundance of blood, casts and albumin in the urine, is good under proper care and we think that rarely are strong medicinal measures imperative. The kidney trouble usually follows the milder cases because of neglect of proper management and this should always serve as a warning to insist on the particulars of treatment in the milder cases.

We have many other complications and sequelae that may occur but in this short paper but brief mention of them will be made.

Enlargements of the glands of the neck with or without a surrounding cellulitis indicate that the treatment of the posterior nares and throat is not as thorough as it should be, or is too vigorous, or we have extensive poisoning at this point. The treatment is at all stages the ice bag applied to the part and greater vigilance in the treatment of posterior nares and throat. When pus forms early incision should be instituted and complete drainage established.

This is a complication to be feared if not handled in a vigorous manner as we may have the infection eating into the larger blood vessels of the neck and a fatal hemorrhage taking place.

A synovitis either single or multiple should be treated by rest and immobilization of the affected part or parts as near as

possible, and either the ice bag or ichthyol applied locally. These cases usually subside in three to seven days.

The anaemia present during or as an aftermath of an attack of scarlet fever should be treated by Basham's mixture. Some observers go as far as to say "no leucocytosis, no scarlet fever" and as a consequence we find that our iron and ammonium acetate comes frequently into play.

Empyema, serous effusion in pleura and cardiac lesions as endocarditis may take place, usually as complications of highly septic forms and the treatment indicated is that usually followed in such cases. We may have concurrent with or following scarlet fever, a Klebs-Loeffler infection; when such is the case or there is the slightest suspicion of such a condition, antitoxin should be resorted to immediately. We have no sympathy with the arbitrary use of diphtheria antitoxin for diseases other than diphtheria, and we know that cases of scarlet fever have been treated by this means and the claim made that the case was benefited by its use. The reason, of course, being that a mixed infection was present.

This leads to a consideration of the treatment with sera, usually a streptococcic or streptolytic serum, because we are not absolutely sure of our micro-organism, we find that our sera are not specific or reliable. A number of continental workers have used various sera prepared from several different varieties of streptococci but with very confusing results. This is due to the fact that various epidemics of scarlet fever vary so in their virulence and the results obtained in one epidemic cannot be compared with those obtained in another. There is a sera recently prepared by Moser (Vienna) that has been used by several Germans. It is not in the market as yet and its clinical value has not been thoroughly tested and the most we can say is that it promises much.

In closing, we wish to emphasize the fact of the variability of the strength of this infection and to put you on your guard in the treatment of what may seem a mild case so that a careful thoroughness of the details of treatment be adhered to and the

physician saved a surprise party. Also, that at all times, your treatment should be rational and not empirical and not to over-treat or over-drug your little sufferer.

To recapitulate—

The symptomatic treatment consists largely of hydrotherapy and the prevention as far as possible of extension of infection by application of mild cleansing antiseptics to throat and nose. Rest in bed and a milk diet are essential rules of successful handling of these cases. The proper amount of fresh air is at all times imperative. Medicines are to be used and not to be abused. The serum treatment is as yet in abeyance.

THE TREATMENT OF THE EAR, NOSE AND THROAT IN SCARLET FEVER.*

BY HENRY B. LAMERE, M. D.,
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I very fully realize the importance of that part of this evening's program which has been allotted to me and while I am glad to have a subject of so much interest still I find on looking over the literature that the treatment of the nose and throat in scarlet fever is given in a very general and loose way and that for much of what I have to say I shall have to stand sponsor without giving extensive references.

I will call attention to one or two points in the anatomy and physiology of the throat which seem to me of particular importance in connection with the subject of this paper. In young children the faucial tonsils have, I believe, normally the specific function of protecting the throat from the infectious material inhaled during mouth breathing. Without going extensively into this theory it is sufficient to call attention to the fact that the tonsils in children are and should be normally better developed and more active functionally than in adults. This I think is a natural sequence to the fact that in the child the nose becomes more easily occluded and as mouth breathing supervenes more infectious material is inhaled through the mouth, and comes in contact with the delicate mucous membrane of the child's throat. The tonsils therefore when their resistance is overcome by the virulence of the infection, make with their recesses and crypts a stronghold for the disease. This applies even to previously healthy tonsils and in the chronically hyper-

*Being part of a symposium on Scarlet Fever, read at the Omaha Medical Society, Oct. 12, 1908.

trophied tonsil where there is lowered lymphatic resistance and already septic crypts the infection becomes still more strongly entrenched. The ear and nose are directly contiguous to the nasopharynx and in the event of a serious case of scarlet fever can hardly escape. In the child the eustachian tubes are more patulous and shorter than in the adult and in infancy are almost horizontal. The communication of the nasopharynx with the ear is therefore in the child much more direct and the chance of infection correspondingly greater. The adenoid tissue of the vault and back of the pharynx if hypertrophied may cover the tubes preventing their even ventilation and by direct contact with the mouths of the tubes the adenoids being infected themselves may discharge pus into the tube and thus infect the middle ear or they may accomplish the same result by interfering with the drainage of the nose. The muco purulent secretion is prevented from being expelled anteriorly by reason of the occlusion of the nose by the adenoids interfering with the nose breathing. The adenoids also prevent the free drainage of the nose posteriorly into the throat so that the mouths of the tubes are bathed in stagnant purulent nasal secretion. The stagnant nasal secretion besides being a menace to the middle ear and mastoid, is also in communication with the frontal sphenoid and ethmoid sinuses and the antrum of Highmore and any of these sinuses may be the seat of an empyema. Cases of optic neuritis from the proximity of extensive nasal infections have been reported. Laprée out of 39 cases of scarlet fever complicated with purulent rhinitis reports 18 fatalities.

Pike claims that the discharges from the throat, nose and ear are the chief conveyors of infection in opposition to the popular theory that the scales convey the disease. The angina is the first symptom and the ear is still suppurating, generally the latest evidence of the disease, and it is in the nose, throat and ear where the great battle against the streptococcic invasion is fought out. As the avoidance of the after results of both the suppurating ear and chronic purulent nasal catarrh depend

greatly on the efficiency of the local treatment during the onset and early days of the infection, it is somewhat surprising that the subject has not received more consideration and the treatment been given more in detail.

From what has been said it is self-evident that by way of prophylaxis the previous removal of enlarged adenoids and enlarged and infected tonsils would render the child in the event of contracting the disease later much less liable to nasal and aural complications and further aid materially in controlling the disease.

In the mild angina of simple cases nothing more is needed than an alkaline gargle or spray for the throat $\mathcal{R}$ Sod. bibor. Sod. bicarb. aa $\mathfrak{z}$ ss. Glycerine $\mathfrak{z}$ ss. Aquae dist $\mathfrak{z}$ xvi. is a good formula and equally efficient with the more expensive washes put on the market by the different houses. With more virulent inflammation 20 m. of carbolic acid 95% may be added to the above. The solution may be flavored with peppermint water and saccharin.

In serious cases the irrigation of the nose and pharynx becomes of great importance. As the child's strength must be husbanded the technique must be perfect and the washing be done expeditiously to avoid any undue strain.

The solutions being of the right temperature should be in readiness and the syringe filled. The child is wrapped tightly in a blanket and placed on its side with its mouth slightly downward. The solutions are then used expeditiously and the expelled secretions come easily out of the mouth and nose with slight danger of swallowing and are caught in a good sized pus basin. The wash should be injected into one side of the nose allowing it to return through the other or be discharged through the pharynx into the mouth. The crying, coughing and spluttering of the child will aid in expelling the muco pus. No force should be used till it is ascertained that there is a free return of the irrigation and then the pressure should be only slightly increased or the pus may be forced up the eustachian tubes along with the irrigation. The best instrument for this is the soft

rubber bulb ear syringe through a fountain or piston syringe may be used. If the nose is quite occluded the nasopharynx can be reached better by passing a soft catheter through the nose. A special tube and bulb is made for this purpose and is softer and distributes the solution more evenly than the catheter. If the catheter is perforated along its side the nose will also be irrigated.

For nasal irrigation Dobell's solution is very efficient and generally the best. Seiler's tablets while suitable for the mild cases do not have sufficient antiseptic qualities for the severe cases. Permanganate of potash 1 gr. to the pint with a little bicarb. of soda added is one of the most efficient germicides though slightly irritating. As part of the wash may be swallowed antiseptics used must be of a non-poisonous nature and with this end in view I have found alphozone solution very useful as if ingested this is not even depressant in its action. If the child is held in the side position however the solution will not be swallowed. Hydrogen peroxid 1-4 of water made alkaline by the addition of bicarb. of soda aids materially in dissolving the membrane of the septic cases. It should be followed always by an aqueous alkaline wash to expel the frothy debris. All solutions used in the nose should be at 100° Fahrenheit temperature. A little mentholated liquid alboline is beneficial when following the wash and is most efficiently applied with a medicine dropper or spray. The empyema of the nasal sinuses will as a rule clear up with the purulent rhinitis without any treatment being directed to them. If the nasal secretion is not expelled by the irrigation and the child will not blow it out the irrigation may be followed by inserting the nozzle of an air bag and blowing in one nostril leaving the other free. The crying of the child will close the soft palate and large quantities of muco pus will be expelled. It may be urged that these water and air douches increase the danger of infection of the middle ear. With a high temperature and retained pus however it is necessary to get rid of the pus to save the child. If however the douches are used gently instead of increasing the danger to the ear it is very much diminished. In the adult I

have never had a suppurating ear supervene on a non-operative case of purulent rhinitis while under treatment and in these cases I use nasal washes freely. On the other hand many of my worst mastoid infections have come from a neglected purulent rhinitis the patient first coming under treatment when the infection had spread from the nasal sinuses to the ear.

The ear should be examined whenever there is a sudden rise of temperature or the child becomes fretful. If the drum is bulging it should be incised without delay. A general anesthetic may be given or not according to the exigencies of the case. A local anesthetic is absolutely valueless and a waste of time as that portion of the drum membrane reached by instillations is skin and not mucous membrane and any application of cocain has just as much effect here as it would on the unbroken skin of the hand. The canal is first thoroughly syringed out with a $\frac{1}{2}\%$ carbolic acid solution as hot as is comfortable and an incision is made posterior to the handle of the malleus as long as possible vertical and curved with its convexity backward. After the drum is incised or after it breaks spontaneously the after treatment is irrigation every four hours during the day and every six hours during the night with hot antiseptic solution in the intervals keeping the ear lightly stopped with cotton which is changed as often as necessary. If the discharge persists for more than two weeks instillations 1-500 bichlorid sol. alcohol may be made once daily after irrigation. Careful treatment of the ear will generally prevent mastoiditis.

When symptoms of mastoiditis present the opening in the membrane should be enlarged and carried up into the posterior wall. Hot applications should be made behind the ear and if the discharge is very profuse frequent irrigation should be used.

If in spite of all these measures the symptoms have not abated in 48 hours there is probably abscess formation and the indications are for opening the mastoid.

This complication fortunately does not generally come till the fever itself has subsided at the third or fourth week.

If the drum head is red but not bulging, hot irrigation may be used and paracentesis delayed. If there are ear symptoms after 48 hours of this treatment the drum should be incised. If earache persists after a spontaneous perforation or paracentesis the opening should be inspected and if not sufficiently free should be enlarged.

THE QUARANTINE MANAGEMENT OF SCARLET FEVER IN THE HOME.*

BY H. M. McCLANAHAN, M. D.,
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There is no municipal hospital in Omaha for the treatment of any contagious diseases except smallpox. All cases of scarlet fever must therefore be treated in the home.

In London, 58% of the cases of scarlet fever are treated in the municipal hospitals of that city. In all the large cities of the continent, a large percent of the cases are treated in hospitals. In Boston, 40% of the total number of cases reported, are treated in the South Department of the Boston City Hospital, and in all of our large Eastern cities, many of these cases are treated in hospitals.

In our city therefore the isolation of these cases in the home devolves upon the attending physician. It becomes his duty, not only to give such quarantine regulations as will prevent the spread of the disease from the house, but where there are other children to prevent the extension of the disease to them. His directions therefore should be specific, and at the same time practical, and such measures as can be carried out by people of reasonable intelligence, in modest homes.

1. How may the physician treat a case of scarlet fever and avoid the risk of carrying the disease to other patients?

On entering the house, he should leave his hat, gloves, top coat, coat and cuffs in the hall. Before entering the sick room he should put on a gown or what I prefer, a sheet, as the latter can be left at the home whereas the gown must be carried about and unless it is disinfected, it may be a source of danger. It is

*Being part of a symposium on Scarlet Fever, read at the Omaha Medical Society, Oct. 12, 1908.

a simple matter to throw a sheet over the head, fasten it beneath the chin with a safety pin, then it can be thrown over the arms and held in place by a safety pin about each wrist. This permits of the use of the arms in examining the patient, and at the same time the head and body are practically covered. On leaving the room, the sheet can be hung in the door way, leaving pins in place to indicate which surface of the sheet was outside, ready to be used the next visit.

When examining the throat of the patient, the physician should be careful to keep his lips tightly closed. When leaving the sick room, the physician should wash his hands and face, after which the hands should be rubbed with alcohol. It is well also to rinse the mouth and gargle the throat with dilute alcohol or other antiseptic. By complying with these reasonable conditions I think a physician may safely visit other patients without any danger of carrying the contagion.

2. Preparation of the sick room.

A room should be selected with a view to its isolation, and to its proper heat and ventilation. Often in small homes it is necessary to utilize the parlor for the sick room. Having selected the room it should be divested of all furniture and fixtures, including carpets, pictures, draperies, etc. There should remain in the room only a bedstead, (and this should be of iron if possible) two wooden chairs, and a plain wash stand and shades for the windows to control the amount of light. Often a cot is left in the room to be used by the mother or attendant. The mattress is to be completely covered by glazed wrapping paper. When the case is terminated it is to be treated as indicated later. If a closet communicates with the room, it should be thoroughly emptied before the patient is brought in. In the winter, if the attendant desires some covering for the floor, carpet paper can be used. It is cheap and can be burned later. In houses without furnaces it is better to use a room with a fire place if possible. Avoid the use of oil or gas stoves, as these rapidly vitiate the air of the room.

A sheet should be hung in the door way entering the room on the opposite side of the casing from the door. It should be tacked across the top of the opening and down one side, and should hang full on the other side. This sheet should be wet two or three times a day with one percent carbolic water. This is most conveniently done by means of a whisk broom. It will be found that the damp sheet will hang in place and not blow about as would a dry sheet. The space between the door and the sheet can be utilized for hanging the wearing apparel of the attendant or physician, but not used as passageway when there are well children in other rooms. In some cases where the sick room contained no stove I have had it heated from an adjoining room by having the door removed and sheets fastened on each side of the opening.

Many families cannot employ a trained nurse, hence the care of the child devolves upon the mother who has household duties to perform and perhaps other children in the family to care for, hence specific instructions should be given her. While in the sick room, she should wear a muslin cap to cover the head completely, a cotton wrap to cover the body from the neck to the feet entirely, this to be worn over her clothing, and a pair of slippers or shoes, all of these to be used in the sick room only. When she leaves the room, it is usually better, unless the bath room is properly situated, to have a pitcher of water and wash bowl in the room in which she can wash her hands and face and then she should go to the door, remove her outside wraps, cap and shoes, and leave these articles between the door and sheet. Before mingling with the family, she should wash her hands again in some antiseptic solution, and rinse her mouth. She should avoid caressing other children in the family. She should arrange her work so as to go in and out of the sick room as few times as possible during the day. After the first ten days in mild cases, the mother can remain out of the room for some hours at a time attending to her household duties, if she will use tact in providing some kind of entertainment for the child. Where families are able to employ a trained nurse, it

is understood that she understands how to prevent the spread of the disease.

In carrying food to and from the sick room, the following directions should be given: The meal is prepared in the kitchen and carried to the sick room by the mother or other persons. Fortunately the diet is very simple and not many dishes are required. The dishes used in the sick room when ready to return should all be placed in a tin pan, covered carefully with a newspaper, and carried to the kitchen, and boiling water poured over them, after which they may be washed as usual.

It is better to keep two or three glasses in the sick room and then these can be rinsed out and not carried back and forth. Milk and other foods should not be kept in the sick room.

All clothing in the sick room should be kept separate from the family laundry. Clothing or bed linen soiled by discharge from the kidneys or bowels should be placed in two percent carbolic acid water solution. This clothing should be carried from the sick room, and kept in this solution until it can be washed. Clothing and bedding not soiled by discharges, can be folded and wrapped carefully in newspapers, and in this way be kept for a few days until ready to be washed. When the mother can find time, these articles of clothing should be placed in a wash boiler of water, not having been unwrapped until this time, and boiled. This method sets the dirt and the clothing does not look so white afterwards. It is at the same time sanitary and any danger from this source is avoided. In all cases of scarlet fever, old pieces of linen or muslin should be cut in squares and kept in the room ready for use about the nose and mouth. When soiled, they should be placed at once in a paper receptacle and once a day, being carefully wrapped, they should be taken from the room and burned. While there is probably little danger from infection from the kidneys or bowels, the discharges should be promptly disposed of. My rule is to direct that there be kept in the sick room a wooden bucket of two gallon capacity filled with water containing one pound of sulphate of iron. Some of

this solution should be kept in the vessel except when a sample of urine is desired for examination.

In cases of scarlet fever in children between the ages of six and fifteen years, the quarantine after the first ten days becomes very irksome indeed, and there is frequently danger of these children leaving the room without the consent or knowledge of the mother, hence it is very important that the physician arrange for simple amusement for the patient, and I am in the habit of making the following suggestions: Provide the patient with a pair of scissors having rounded points, a lead pencil, a bottle of mucilage, a writing tablet, a cheap scrap book, and Sunday papers and illustrated magazines. With these simple means a child can spend hours cutting out pictures and pasting them in the scrap book. In order to furnish variety, I suggested that the child place certain series of pictures in different parts of the book, for example, all animals in one part, scenery in another, etc. With one bright little girl who found time hanging heavily over her head, I suggested that she cut out the larger sized letters in the daily papers, arranging these letters in words the whole to constitute a letter to me to be read at my next visit. The mother informed me that she occupied all her available time for an entire day in writing this letter.

In the case of boys, an air gun with a target stationed on the opposite wall will add greatly to their pleasure. Other harmless amusements will naturally suggest themselves. But do not forget that a happy child will make a better convalescent than a discontented one. With larger children there is a tendency to read too much while in bed. The mother should be instructed to guard against this and when possible should spend some time each day in reading to the patient.

When convalescence is complete, the following directions may be given for moving the child from the sick room. Direct the mother to have a wash tub brought into the room, in which the child is to receive a thorough body bath, including careful washing of the hair, and toilet of the fingers and toes including the nails. Then the head may be carefully washed in equal parts of alcohol and water. The patient is now to be quickly dried,

and carried to the door where the attendant is to have a warm, dry blanket ready to throw around the patient, one which has not previously been in the sick room. The patient is then carried into another room, where he or she is to receive a good sponge bath with water and towels that have not previously been in the sick room. If the child is larger, then clean, new papers should be put upon the floor upon which it may walk to the door. The under clothing, which should be warm and dry, and the outer wraps to be used by the patient should of course be ready when the child is taken into the other room, so that here she may be completely dressed. In this way the possibility of carrying infection from the sick room can be entirely avoided.

The length of time in which the patient should be in quarantine is an important matter and one about which there is a great difference of opinion. McCollum of the South Hospital of Boston, gives fifty days as the average time. In private practice, this is altogether too long except in rare cases. The danger of contagion from the patient is either from the desquamation of the skin, or discharges from the mucous membranes. Hence if there is no discharge from the ear and nose and primary desquamation is complete, then in my judgment, the child can be taken out of quarantine. I should say that the minimum time is four weeks, and a majority of cases longer. It is not probable that the secondary desquamation of the hands and feet is contagious, hence to keep a child in quarantine because of secondary peeling of the hands or feet is not necessary.

The disinfection of the room after the patient has been removed: This to my mind is a very important phase of the subject, and it is not probable for years to come that our board of health will be supplied with sufficient funds to thoroughly do this work, so that minute directions must devolve upon the attending physician. When the patient is removed, all clothing and bedding is to remain in the room until disinfected. The first step therefore, is to spread sheets and bedding over the chair backs. To avoid the danger of fire, place a tub in the middle of the room containing two inches of water, then place some bricks in the bottom of the tub. The candles are to be placed upon these

bricks above the water line. Spaces around the windows should be carefully fastened using for this purpose, cotton batting or pasting strips of paper along the space between the sash and casing. Then the candles are to be lighted and the door closed and the cracks between the door and casing filled up, including the key hole. The room should remain closed twenty four hours. The following day the windows are to be opened, all bedding and clothing are to be wrapped in paper and removed from the room to the laundry. If the mattress has been well wrapped, with paper, it need not be destroyed, but treated in the following manner: Make one-half gallon of one to one thousandth corrosive sublimate solution in water, then with a whisk broom, frequently dipped in this solution, brush the entire surface of the mattress including all creases and folds. After this the mattress should remain in the open air for two or three days, the weather permitting. The bedstead, the chairs, the floors, the doors, windows, and the mop boards, should be thoroughly washed in the above solution. Any particles of discharge or epidermis are in this way wiped up. The ceiling and walls, whether papered or not, are to be thoroughly wiped down with moistened bread. If the head of the house can afford to have the room re-papered and re-varnished, it is perhaps better but I do not think it essential. If the room is not to be re-papered, then any loose corners of the paper are to be carefully wiped off and pasted back again.

If all of the above details have been carefully carried out I direct that a second formaldehyde candle be burned in the room, and that the windows be kept open for three or four days before the room is again re-papered.

I want to reiterate that every part of this process of disinfecting the room and contents should be made clear and explicit. It involves a great deal of work, but very little expense, and I have found that the mothers in the poorer families are entirely willing to perform this arduous labor, if they can be saved undue expense.

468 Brandeis Building.

LACTACID MILK IN THE DIETARY OF CHILDREN.

BEING A REPORT OF NINETY-SIX CASES.

BY LE GRAND KERR, M. D.,

PROFESSOR OF THE DISEASES OF CHILDREN IN THE BROOKLYN POST-GRADUATE MEDICAL SCHOOL; VISITING PEDIATRIST TO THE METHODIST EPISCOPAL (SENEY), THE SWEDISH AND THE WILLIAMSBURGH HOSPITALS IN BROOKLYN, N. Y.

In this preliminary report of ninety-six cases treated with lactacid milk there will be no attempt to go into unnecessary detail, but there will be given the results of a clinical experience. This experience has covered several months and has had brought within its scope, many different conditions and diseases. But the question of the nomenclature of the gastric and intestinal diseases of infants and children is still so unsettled, that in this report, we will generally avoid giving the particular diagnosis in each case. Instead, the cases will be divided into several groups and in this way, we can more readily succeed in making perfectly clear just what kind of cases were treated and the results obtained.

The division of the cases is as follows:

A. Difficult feeding cases.

1. Without vomiting or diarrhea, twenty-one cases.
2. With vomiting and no diarrhea, sixteen cases.
3. With diarrhea but no vomiting, forty-two cases.

B. Acute diarrhea (not attributable to feeding).

4. Eliminative diarrhea, accompanying general disease, eleven cases.
5. Tubercular, one case.
6. Chronic intestinal indigestion, three cases.
7. Chronic ileocolitis, two cases.

In groups I, II, III, the cases were all infants under the age of two years.

In group IV there were four under two years—four between two and five—three over five.

Group V, the child was six years old.

In group VI, two were under two years and one aged seven.

In group VII, both were infants under two years.

In all of these cases, there was a definite method of procedure in the preparation of the milk. From a previous experience, I had early learned that if a perfectly fresh milk was not used, the results were more or less disappointing. Therefore no milk that had been subjected to either sterilization or pasteurization was used. The precautions in the selection of the original milk were as rigid as though the milk was not to be treated in any way. The milk was modified according to the generally accepted rules for the age and weight of the child. Further than this there was a modification in accordance with the condition in which the child was at the time of treatment.

Lactone tablets were used to produce the change in the milk. These tablets were not used in the proportions as usually recommended, but one-quarter of one tablet was used to every eight ounces of milk which was contained in the mixture.

The results obtained follow:

Group I. Immediate improvement in nine; slow improvement (within the first week) in eleven; no improvement in one.

Group II. Immediate improvement in three; slow improvement in eight; no improvement in five.

Group III. Immediate improvement in thirty-one; slow improvement in ten; no improvement in one.

Group IV. Immediate improvement in eight; slow improvement in three.

Group V. Immediate improvement noted.

Group VI. Immediate improvement in all three cases.

Group VII. Immediate improvement in one instance and no improvement in the other one.

It was not practical to have regular weighings made of all of the cases, and in fact, but thirty-one of them were regularly weighed. Of this number, those who showed an immediate improvement almost without exception also showed an increase in weight beginning within one to five days after the milk was first used.

In no instance was any attempt made to return to the food which the child had been previously taking within less than ten days. Ten days was the minimum time for the use of the lactacid milk, while the maximum time is still undetermined, for several of the children have been upon it for several months and still continue its use.

In those cases in which its use has been long continued there has been a careful watch kept for any evidences of faulty nutrition. As yet we have failed to detect any;—the increase in weight is above that which is the average in the artificially fed child and the musculature remains firm. The bowel function is also perfectly performed.

Before giving my conclusions from my experience with these cases, I wish to emphasize that there is a marked difference between "buttermilk" feeding and "lactacid" milk feeding.

There is a tendency to the loose use of terms which is confusing. Buttermilk is always an uncertain expedient and its continued use is not always feasible. Being a spontaneously soured milk, it contains elements which may be harmful and particularly after prolonged use.

Lactacid milk has none of these objections and if care is exercised to start with a perfectly fresh and untreated milk, the dangers to the infant are reduced to a minimum.

It has a distinct advantage over buttermilk in that the percentages of fat can be regulated, for in the production of buttermilk, commercially, most of the fat is of necessity taken out.

From a careful comparison of these cases and their observation over a long enough period of time to know remote results as well as the immediate ones, I am convinced that lactacid milk fills a distinct want in infant feeding.

1. It has a very definite value in difficult feeding cases when the various modifications of milk are not well borne and particularly if there is diarrhea as an accompaniment.

2. If the diarrhea is fermentative, the use of the milk gives an almost uniformly immediate beneficial result.

3. In the eliminative diarrheas which so often accompany the general diseases and particularly the acute infectious diseases, it has a decided effect upon the severity of the diarrhea and also upon the nutrition of the patient.

4. In chronic diarrheas it offers enough relief to warrant its extended trial.

5. The probability of its beneficial effect in the specific intestinal infections should be borne in mind and made use of.

6. There seems to be no age at which its effect is more marked than at another; the youngest infant and the older children being influenced alike by its administration in proper proportions.

42 Gates Ave.

THE CAUSATION AND TREATMENT OF INFANTILE CONVULSIONS.*

BY E. W. SAUNDERS, M. D., of St. Louis.

As we are dealing not with a morbid entity, but with a symptom complex, I will ask permission to ignore the usual classification of factors into predisposing and exciting, etiologic and pathogenic, and to adopt a simple didactic and clinic nomenclature.

I.

CENTRAL CAUSES.

1. Gross lesions of the brain or meninges, morbid or mechanical, congenital or acquired.
2. Concussion—*commotio cerebri*.
3. Sudden changes of pressure in the blood or cerebro-spinal fluid.

II.

CENTRIPETAL CAUSES.

1. Reflex.
2. Psychomotor.

III.

DYSTROPHIES AND INANITION.

1. Rickets—Tetany.
2. Acute and chronic cerebral inanition.

IV.

HEREDITARY, OR CONGENITAL (INORGANIC) CAUSES.

1. Similar or dissimilar heredity.
2. Prematurity, congenital debility.

*Read before Joint Meeting of the Bethesda Pediatric Society and The St. Louis Medical Society, Nov. 7th, 1908.

V.

INTOXICATION.

The whole list of drugs and poisons, including food poisons, credited with spasmogenic power, (CO_2 and acetone excepted). Some of them, such as alcohol, may be imbibed with the breast milk.

VI.

INTOXICATION.

The specific toxines of the acute infectious diseases, including those of organisms, like the colon bacillus, which sometimes become parasitic.

VII.

PYREXIA.

1. From toxines.
2. From reflex irritation.
3. From heat-stroke.

VIII.

AUTOINTOXICATION.

1. From gastrointestinal disturbance.
2. From hepatic insufficiency.
3. From disturbance of the internal secretions.
4. From renal insufficiency.
5. From pulmonary and cutaneous insufficiency.

IX.

MATERNAL AUTOINTOXICATION.

1. Puerperal eclampsia.
2. Violent emotion shortly before nursing.

X.

1. Asphyxia.
2. Whooping cough.
3. Thymic asthma.

XI.

SPASMOPHILIA.

XII.

ECLAMPSIA OF THE NEW-BORN

(requires a separate consideration).

Before taking up the foregoing in detail, it would be well to consider the defenses of the organism against the malignant influences which are operative in the subject under consideration. Disease is defined as "the reaction of cells to noxious influences." The body cells are guarded from the approach of the enemy by a quadruple line of defenses.

I. The digestive ferments, and the transforming power of the gastro intestinal mucosa, bathed in these secretions, supplemented by the phagocytic power of the leucocytes, which swarm in the mucosa during digestion.

II. The toxicolytic function of the liver.

III. The toxicolytic function of the ductless glands, the pituitary, the adrenal, the thyro-parathyroid, and the thymus.

IV. The eliminative function of the kidneys, intestines, skin, lungs and salivary glands.

The digestive ferments have toxicolytic power in the order named: 1st, the pancreatic juice, 2nd, the saliva, 3rd, the gastric juice. This power, however, is not supreme, and in some instances, avails nothing, as in the case of cobra-venom, which is a toxalbumose.

The cells of the mucosa habitually convert poisonous intermediary products of digestion into pabulum for the tissues. If they are destroyed by ulceration, or thrown off in great quantities as in choleraic diarrhea, this line of defense is gone, and not only do all manner of toxic substances, peptones and toxins, enter the circulation, but also bacteria may freely penetrate the wall.

Von Behring has shown that permeability is normally characteristic of the intestinal mucosa for the first quarter of infant life. The integrity of the digestive functions is essential

for the preservation of the normal "digestion leucocytosis," which is in evidence in the whole circulation, but pre-eminently in the intestinal wall. The role of the leucocytes in attacking invading cells, is well known, and they even segregate arsenic, for instance, in arsenical poisoning.

The liver, along with its other functions, combines that of rendering toxic agencies less noxious. It is estimated that it normally reduces the toxicity of the blood brought to it by one-third, and by how much more in disease, has not been determined.

Animal and vegetable alkaloids are peculiarly subject to its reducing action. Ammonia is there synthetized to harmless urea. A striking example of its reducing power is given by guaiacol. Administered internally, it is not possible to obtain a striking antipyretic effect in fever, but fifteen or twenty drops absorbed by the skin, gives an immediate and powerful effect, notably in the pyrexia of tuberculosis, pneumonia and typhoid fever.

The ductless glands are now credited by all investigators with playing a leading part, not only in the normal metabolism of the body, but in its defense in time of war. Even the little-understood thymus is believed to be charged with the duty of reducing catabolic poisons in the blood during foetal life. Up to the present time the deplorable fact remains that we do not sufficiently understand their reciprocal functional relations and their combined effect upon the organism, and the changes of function produced by disease, much less how to meet these changes. Sajous, for instance, claims (on what evidence it does not appear) that at the moment of a convulsive seizure there is an enormous hyper-secretion, whereas there was a hypo-secretion precedent to the attack.

The emunctories of the body constitute the line of defense which we best understand and over which we have the most control. Of this we will speak more fully under the head of treatment.

In considering the central causes of convulsions we should not only think of severe traumatism, hemorrhage, tumor, throm-

bois, abscess, meningitis, obvious hydrocephalus, but also of such conditions as concussion, congestion, anaemia, initial hydrocephalus, or transitory change in the amount of cerebro-spinal fluid.

A baby two years of age fell from a window sill upon the crown of the head, and had a convulsion. She speedily returned to a normal condition and seemed to be none the worse for her experience. After a few weeks convulsions returned, and she gradually developed a confirmed epilepsy.

Sudden congestion of the brain occurs in fever and in asphyxia, and no doubt contributes to the occurrence of eclampsia. I have observed in a case of apparent death due to post-diphtheritic heart failure, that on the return of the pulse, after artificial respiration, there would occur mild convulsive movements of the muscles of the face and extremities, due to the sudden return of the blood pressure. Immediately after lumbar puncture in a case of prolonged convulsive seizures, I noticed that the attacks became more severe and continuous. In the hydrocephalus of early infant life, every rise of pressure is marked by a series of convulsions, and a subsidence of fluid brings on abatement.

It is possible that some of the cases of convulsions in the beginning of rickets, not characterized by laryngospasm and other marks of tetany, may be due, to a minor degree of hydrocephalus.

Under the head of centripetal causes come the various reflexes that have been brought forward as capable of producing eclampsia: phimosis, dentition, intestinal parasites, foreign bodies, indigestible food, or excessive amounts of food, otitis, calculus, strangulation of intestine, undescended testicle, are all credited with spasmogenic power, on good authority.

It is surprising to see the amount of acrimony injected into the discussion of dentition as a pathogenic agent, especially by the Vienna school. The plea that it is physiological applies with equal force to phimosis and indeed to parturition. In a case seen by W. L. Johnson, convulsions occurred for the first

time accompanied by high fever and double otitis. In spite of all treatment, they persisted, after subsidence of fever and healing of the scars, and only ceased after circumcision. He reports two other cases in which there has not been a return since the operation.

Rachford truly states that a nagging reflex may cause high fever and even degenerative changes in the central nervous system. Jesse Myer has made some very enlightening discoveries in relation to the occurrence of "intestinal sand" after the ingestion of bananas. He finds that it is due to the gum resin and tannin of the tubules. He has requested me to ascertain, if possible, whether the occurrence of convulsions in children after eating bananas may be due to the irritation of this sand. It is possible, although the child has usually gorged itself with the fruit, without the semblance of mastication.

Under the head of centripetal causes comes also the small group due to sudden fright or rage. I have seen a single convulsion occur from the use of the thermometer (no anal fissure). Sometimes a child of uncontrollable temper loses its breath, and has a slight, or severe general convulsion. This recurs so often that it becomes a habit. I would suggest the term "Orgilospasm" for this well defined group of cases. In the few which I have seen there was no sign of tetany.

Heredity is a well known factor in the etiology of eclampsia. Every member of a large family has been known to be subject to it. Sometimes the neuropathic diathesis in the ancestors is dissimilar. Drunkenness is peculiarly prone to be transmitted into convulsions, resulting in epilepsy.

It would be interesting to know whether prematurity contributes, to any appreciable extent, to the occurrence of eclampsia. I have in mind a very neurotic mother who lost her first two children in difficult labor, and was delivered of the next two at eight months. They both died of convulsions under one year of age, the one in the course of whooping cough and the other in the initial fever of measles.

Tetany and rickets seem to be almost synonymous in the treatment of this subject. The general weakness and small-

ness of the cartilages may affect the structure of the larynx, and be in part responsible for the laryngospasm. If the convulsion is inaugurated with a crowing sound, we may at once divine the nature of the case. It is well to remember that the list of drugs capable of producing convulsions in infants is a long one. Balsam of Peru applied to the nipple has produced them in the nursling. Likewise diachylon ointment, and acetanilid applied to the umbilicus. Phenacetine and antipyrin have caused severe cutaneous eruption with eclampsia. Carbonic acid gas and acetone are universally credited with this power, but on no adequate evidence. Acetone is feebly anesthetic and not convulsivant. CO_2 is nature's anesthetic. Physiology teaches that CO_2 poisoning, slowly induced, ends in coma and not in convulsions. If however, the supply of oxygen be rapidly cut off, convulsions occur. The significance of this fact will be brought out later. The Germans are particularly insistent that alcohol should not be allowed to the nursing woman. I would remark in passing that Bunge attributes the failure of modern women to nurse their infants largely to this cause. Intoxication is a convenient word coined by Combé, the meaning of which is apparent. At first sight it might seem useless to distinguish between this and pyrexia as causative agents. But I wish here to make a point. Just as it is unscientific to credit CO_2 and acetone with spasmogenic power, when all the evidence is to the contrary, so I hold that no toxine should be listed as a cause of convulsions, until it is proved that it, and nothing else, is the guilty party. The toxine of tetanus is undoubtedly spasmogenic, but the unknown toxine of measles would seem to be soporific. That the sudden onset of measles is sometimes accompanied by convulsions, is capable of quite another interpretation.

Of all the factors entering into the causation of eclampsia, initial pyrexia seems to be the most prolific and the most dangerous. This is, no doubt, largely due to the fact that the infections which give rise to fever with convulsions, are more or less virulent, but pyrexia due to heat stroke with no exogenous infection is even more fatal. However, one fact strikes us as very sin-

gular in this connection, namely, that the convulsions in the vast majority of cases are initial only. If the child comes out victorious in the contest, after a day or two, there is no tendency to return, even though the high temperature may continue for a long time. A recurrence late in the course of the infection almost invariably means death, due to organic changes in the kidneys and other organs.

If then the specific toxines, most of them, cannot be credited with direct spasmogenic power, and if fever has not that power throughout the whole course of the infection, it behooves us to search for some other link in the chain of causes. We find it in the wide domain of autointoxication.

In advanced organic disease of the kidney, we see the clearest type of convulsions due to retention-toxicosis. Likewise in the onset of fever we have all the conditions requisite to autotoxemia—dry skin, dry mucous membranes, suppression of oral and gastrointestinal secretions, renal insufficiency, hepatic insufficiency and most probably disturbance of the function of the ductless glands. The urine first voided may be colorless and of very low specific gravity, as low as 1002; the next contains urates in abundance. The specific gravity, registering the output of solids, furnishes a good index of the progress of the retention-toxicosis toward recovery.

These initial convulsions more often come on during sleep, and this reminds us of the fact that epilepsy in its first manifestations nearly always begins in the early hours of the morning. In sleep during the first stages of fever the temperature rises and the respiration becomes much more rapid.

Bouchard's theory was that the normal catabolic products of the tissues during sleep were spasmogenic, whilst those of the waking hours were soporific. Certain it is that sleep is apt to bring on convulsions, where the conditions are ripe for their occurrence.

Whilst the urine betrays an hepatic insufficiency, it is impossible in the present state of our knowledge, to know just what the ductless glands are doing in initial high fever. Shaw says (not referring, however, to febrile diseases) "it is possible

that some cases of infantile convulsions are due to disturbances of the child's thyroparathyroidal apparatus or possibly, in the case of children at the breast, to disturbance of the same tissues in the mother."

Sajous believes that the internal secretions are the most important agents in oxidation. Howland and Richards have proved that the toxicity of indol is due to suboxidation.

Whilst positive proof is yet lacking, it would seem that the presumptive evidence is in favor of supposing an autotoxemia, due both to faulty metabolism and to retention-toxicosis, to be the immediate cause of the initial convulsions of acute febrile infections.

Primary gastrointestinal derangements are a prolific source of eclampsia. There are so many possible causes operative here, that we cannot refer all cases to any one cause. One may be purely reflex, as was that of a baby who had one convulsion, then passed a piece of cotton string, and was perfectly well. Another may be due to failure of primary digestion. Such was the case of a child who became eclamptic in the second year and had convulsions more and more frequently until it was evident that he was a confirmed epileptic. The most noted neurologists had abandoned the case, and the mother sought the advice of some one who prescribed taka-diastase. The seizures, which had been numerous every day, ceased for several years. However, the boy had already become imbecile and the epilepsy returned.

Rachford mentions cases of petit mal due to intestinal auto-intoxication. We should carefully search for digestive idiosyncrasies.

In acute gastrointestinal infection with high temperature, we have a combination similar to that which may obtain in any acute infection. If a child be overtaken by scarlet fever, for instance, with an overloaded intestinal tract, his chances of having convulsions are vastly greater.

Convulsions of the new-born, due to a transmitted toxicosis from an eclamptic mother, furnish another interesting example of the power of autotoxemia. The milk of an enraged mother has produced fatal convulsions. Whether we have to do here

simply with perverted internal secretions, or with these and imperfectly reduced catabolic poisons, perhaps as a consequence or with a toxalbumin, remains to be discovered.

Asphyxia, like cerebral hæmorrhage, is both a cause and an effect of convulsions. The laryngospasm of tetany and of whooping cough is frequently responsible for an eclamptic seizure. When this has once taken place it is very apt to recur at frequent intervals.

An enlarged thymus is sometimes responsible for most unexpected and primarily fatal convulsions, as reported by Holt, Baginsky, Kerley, and others.

The convulsions of whooping cough present a mysterious mortality. There are two modes of onset, the one clearly cerebral from the first; the other asphyxial. The first group presents the following symptoms: stupor, diminished intensity of the paroxysms, slow, shallow and irregular breathing, slight fever. The case always goes on to a fatal termination; hydrocephalus may develop, or there may be a simple meningitis. In the second class of cases intubation should be done, although the results are often disappointing.

The term spasmophilia is reserved for the neurologists, and under this heading we would place all cases which we fail to locate elsewhere. A "physiologic spasmophilia" explains nothing for the clinician and has only an academic interest. A "pathologic spasmophilia" should enable us to place the case under its appropriate head.

Eclampsia of the new-born is said by some writers to be rare, and by others, to differ so much in its manifestations as not to be recognized. Rachford says that the undeveloped state of the pyramidal tracts accounts for the infrequency, but this may also account for the feebleness of the seizures. As Hochssinger says, they are more sustained and tetanic in character.

TREATMENT. I must confess that I am profoundly dissatisfied with the results of the routine emergency treatment of infantile eclampsia. The hot bath I discarded long ago, and I am not at all sure that chloroform is an unmixed blessing. In refer-

ence to the first, authorities are divided, whilst the second is acknowledged to be without effect in many cases. Holt has found oxygen inhalation successful where all else had failed. In primary laryngospastic eclampsia all treatment by inhalation is useless for the time being and in all severe cases the function of respiration is seriously compromised.

Death by asphyxia is the most imminent danger, and as we have learned from physiology, the more rapidly and completely oxygen is withdrawn, the more tetanized the system becomes. It is to be hoped that Holt's suggestion may lead to the trial of respiration as a routine treatment in the place of chloroform.

Prolonged suboxidation may be an underlying fault in many cases—in whooping cough, for instance, it may account for the peculiar persistence and fatality even after intubation.

Morphine as an antispasmodic is certainly more effective than chloroform, and as Holt says, only those object to its use who have never tried it.

To the hot bath there are several objections. In the first place, a large number of cases of emergency convulsions occur with fever. Hyperpyrexia is most to be dreaded. I know of two cases dying in the bath; one with a temperature of 109° and another of 111° . Heat to the spinal column and back of the head is a motor excitant, never a sedative. It is not possible to put a child in convulsions into the bath except in such a way as to immerse the spine. This position is most disadvantageous for dealing with the asphyxia. The abundant mucous secretion and often vomited matter, are retained over the larynx and can only be gotten rid of by placing the child with the face down.

The cool pack has none of these objections. In non-febrile cases, the pack should be warm.

In the treatment of cases due to rickets the phosphates with appropriate diet and hygiene certainly do good. Phosphorus in oil I have never tried, believing with Trousseau that "it is a poison and no medicine." Holt has not been persuaded of its utility, after a fair trial. Bromides and chloral are safe and useful as antispasmodics. *Veratrum viride* is especially in-

licated in acute infections; it has the double advantage of being a spinal sedative in addition to its utility in febrile conditions.

In conclusion I would urge that we go in search of the precise and immediate causative agent or agents responsible for the production of the most common form of infantile eclampsia, —the Initial Pyrexia, and having found them, direct our therapeutics accordingly. The fine work done by Williams in fastening the guilt of hyperemesis gravidarum upon the liver for failure in its synthesis of ammonia, and that of Howland and Richards in relation to indol and its rôle in recurrent vomiting of children, may well encourage us and serve as guiding stars in our quest. Neurin has been thought by Donath to be the autogenetic poison responsible for epilepsy. Suboxidation is certainly an obvious condition present in a large number of cases.

ADDRESS OF ARTHUR DEAN BEVAN, M. D.*

CHAIRMAN COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN
MEDICAL ASSOCIATION.

I am not as familiar with the work of your association as I should like to be. I am, however, in thorough accord with the efforts you are making to secure a place in the medical curriculum, which the importance of your specialty entitles it to. You are, most of you, familiar with the great progress that has been made in medical education in this country during the last ten years and you all recognize how much there is still to be accomplished before we can place American medical education on the high standard which we are all aiming at.

In this country there are 161 medical colleges and all of the rest of the world together but 174. And much inferior work has been done both in preparatory schools and in medical colleges.

In Great Britain, Austria and Germany the courses in the high schools are more thorough, requiring about 12 years of student life. The German boy graduates about the age of 18 years. The mean average of entrance at Harvard and Yale is about 19 years.

There are some schools doing a large part of the bad work. Not all our medical colleges by any means have a low standard. Some of them are upon the highest plane.

The organization of the American Medical Association has accomplished much for higher standards in this country. Its instrument, The Journal, publishes the percentage of failures before state boards of each medical school.

*Read at the Second Annual Meeting of the American Association of Teachers of Diseases of Children, Chicago, Ill., June 1, 1908.

Mr. Chairman, Ladies and Gentlemen:—

You will find that the colleges have not been afraid to graduate men, thirty percent of whom are rejected by the state boards. For years the report showed that 40 percent of the men were rejected. This year but ten percent were rejected. In the past five years, the progress made by the colleges has been gratifying. Of the 161 medical colleges possibly half of them have sufficient merit to warrant their general recognition. Of these schools more than 60 have agreed to require by 1910 in addition to the four year high-school education, one year of training in physics, chemistry and biology. Of these about 30 have agreed to require two years of this work in a university. It is safe to say that by 1910 all of the schools that deserve recognition will demand this preliminary training and will have thus placed themselves in line with Great Britain and the Continent in demanding essentially a five year medical course.

Most of these poorly equipped schools will go out of existence and the 70 or 80 schools that remain will be so strengthened that we shall have within a short time such uniform and high standards of medical education that we can be proud of American medicine.

In regard to the place of pediatrics in the medical curriculum and in the subjects examined in by state boards in the States of Montana and Washington the subject of pediatrics is mentioned but is combined with gynecology. In none of the states where there are great medical centers and medical schools is pediatrics required by the state boards, as for example, the States of Ohio and Massachusetts in which no distinct position is given pediatrics. In South Carolina, one state in which pediatrics is mentioned and required, there are twenty-five medical subjects required for examination. A man is examined in twenty-five distinct subjects. I believe that this is wrong. I am inclined to believe that pediatrics should be demanded by state boards, but should not put in as a sub-topic, under the practice of medicine. We should, I think, limit the number of subjects to ten at the state boards.

Regarding the amount of time that should be devoted to the study of pediatrics: On this question there are wide differences of opinion. My own opinion has been that about ten percent of the time of the senior year should be devoted to pediatrics, especially to the practical side of the subject, in clinics, out-patient department, etc. It seems to me that one of the weak points is the lack of children's hospitals. Gynecology and obstetrics should receive about 15 percent of the time of the senior year. Probably if you endeavored to devote ten percent of the time in the senior year to the subject of pediatrics, the other departments would become jealous and offer some opposition.

In our work we are trying to develop a curriculum. In doing this, we thought it would be a good plan if every specialty in medicine would furnish us with a committee of ten men. The question of utmost importance to be decided is how much time should be devoted to the various subjects both in college and hospital work? After the subject has been thoroughly discussed by these special committees our chairman would meet with the chairmen of the various special committees in order to formulate a curriculum or standard to guide us in our work. I feel certain that this aid would be highly appreciated. In this scheme the entire course of study is divided under ten heads, as anatomy, physiology, pathology, medicine, etc.; both pediatrics and neurology being sub-topics under the general head of medicine. It is hoped that within a year this committee of 100 will report the well-rounded curriculum in which each subject will have its proper place and that pediatrics will be given the amount of time which its importance entitles it to.

We ought to feel very optimistic regarding the progress of medicine. Lately in Indiana all the medical schools were merged, and but recently at a meeting in Kentucky, it was decided to establish a universal school at Louisville.

Medical education in this country needs the support of the individual states and needs private endowment. As far as practical medicine is concerned America leads the world. What we need is a more thorough course in laboratory and clinical work.

Personally, I am very optimistic as to the future and believe that we can all look forward to the time in a few years when American medical education will be on a par with the standards existing in Germany and Great Britain and when this time comes the specialty in which you are all so much interested must receive its proper recognition.

NEW YORK ACADEMY OF MEDICINE.

Section on Pediatrics.

STATED MEETING, HELD NOVEMBER 12, 1908.

DR. GODFREY R. PISEK IN THE CHAIR.

CASE ILLUSTRATING THE MORO TUBERCULIN REACTION.—Dr. Henry Ewing Hale presented a boy of four years of age, who had had inunctions with a 50 per cent. old Koch tuberculin in anhydrous lanolin on one side of the anterior chest; on the other side a 50 per cent. Rockefeller tuberculin was used. The application had been made two days before and the reaction was so beautiful that he desired to present it to the Section. The history of the child showed that he had had an attack of pneumonia in July last which was very slow in clearing up, the signs of bronchitis persisting until late in August. He came to the clinic on October 5 with suspicious signs in the right chest.

The tuberculin had been applied as follows: the skin was thoroughly cleansed with alcohol and an amount of the ointment about the size of a pea was rubbed into it for at least thirty seconds. The reaction consisted in the appearance of one or many red papules on more or less reddened bases. Some of these at times seemed to contain fluid. Very often the reaction was not confined to the immediate area of application.

Dr. Herman Schwarz said that he had noticed that in the use of the Moro test when the salve was rubbed in on one side the reaction appeared in some cases on the opposite side. To account for this he advanced the theory that this reaction might be due to some reflex or neurotic condition which showed itself in some systemic reaction. It was very interesting to note that sometimes the skin eruption was disposed symmetrically, both halves of the body being involved.

Dr. Godfrey R. Pisek said that he had observed that in children who had had diphtheria and in whom antitoxin had been used and was followed by an urticarial rash, the Moro re-

action appeared more quickly and intensely. These children were more liable to dermatoses in general. It was probable that these children were more liable to dermatoses in general. In his experience he had found that the Calmette eye test or the von Pirquet reaction could sometimes be obtained in suspicious cases where the Moro reaction could not be obtained. In tuberculous children who gave histories of some previous skin affection intense reaction was obtained with the Moro test.

A CASE OF SPINA BIFIDA.—Dr. Sara Welt-Kakels reported this case. A girl, three and one-half months of age, whose family history was negative. Though there was no history of lues it was interesting to consider the fact that of nine pregnancies of the mother, four were interrupted during the first half of gravidity. There were four children born at term, two of whom had died, one of pneumonia and the other of measles. At the time of birth the tumor was noticed and it had not grown perceptibly since. The child was breast-fed, was thriving and had never been ill. The weight at present was $11\frac{3}{4}$ pounds. The child was fat, but pale. There were no signs of hydrocephalus. Though usually very quiet it was found that the child moved the lower limbs as well as she did the upper ones. The sphincters of both bladder and rectum were paralyzed. Pressure through the abdominal walls or through the rectum upon the distended bladder expelled the urine. The tumor was about the size of an orange and was located in the sacral region. It was traversed with normal skin which was traversed by numerous small vessels. There was a lipomatous, fatty accumulation on the periphery and a small pigmented area on the skin somewhat below the middle. The tumor was fluctuating and transparent. It was not sensitive to pressure and convulsions were not thus elicited. Careful palpation showed that the vertebral arches were wide open. Upon pressure the tension of the large fontanelle was perceptibly increased. While some of these patients might reach middle life the prognosis was not good on account of the paralysis of the sphincters which increased the liability of infection and gave rise to inflammatory processes of

the urinary tract. There was also danger that the sac might burst and infect the meningeal canal. Cases had been reported where after one or two burstings of the sac recovery had taken place. The methods of treatment employed were ligation of the sac or aspiration of the contents with the injection of some astringent.

Dr. William P. Northrup asked Dr. Welt-Kakels whether there were any other malformations in the case or not.

Dr. Welt-Kakels replied that there were no other deformities either in the patient or in other members of the family.

Dr. Northrup said that such malformations as this were often accompanied by others. He mentioned that he had a case in the hospital waiting to be operated upon. Few of these cases recovered after operation. In this case the tumor was about four-fifths as large as in the case presented. There were also double club feet and he recalled another case in which there was hare-lip, a complete spina bifida and double club feet.

Dr. Sara Welt-Kakels reported the case of a boy whom she had presented some years ago. He was six or seven years of age and had incontinence of the bladder and anus as well as spina bifida. He had been operated upon in Vienna, but was but little improved. He was admitted to one of the city hospitals and an examination of the bladder was made in order to ascertain if there was a stone present or not. Within forty-eight hours the child developed a high temperature and his parents removed him from the hospital. Dr. Welt-Kakels was then called in to see the patient and found him with a high temperature, pus in the urine, and with a large and sensitive right kidney. He was taken to Mount Sinai Hospital where the right kidney was opened and drained. After this there was some slight improvement, but the temperature remained. Dr. A. A. Berg then removed the kidney after finding that the left kidney was functioning. He improved for a time but developed a pyuria and died under uremic symptoms.

A CASE OF OBSTINATE VOMITING.—Dr. W. R. Northrup reported this case, a breast-fed infant who vomited all

his food. The mother had an abundant supply of milk, wished to take the child to the country for the summer and did not wish to wean him and run the risk of a doubtful milk supply and the other annoyances of bottle-feeding while traveling. The child retained food from other sources taken through a rubber nipple. Analysis of the mother's milk showed that it contained 8 per cent. fats; by judicious diet and exercise this percentage was reduced to 6. All the conditions seemed favorable to the mother's nursing the child but he still continued to vomit all the food that he took in the natural way. The baby was compelled to nurse through a shield and the mother's milk was given through a nursing bottle and it was found that the infant retained it in both ways. These methods annoyed the mother, however, and could not be continued. After puzzling over the problem for sometime it finally occurred to him that as the supply of milk was abundant and the flow very easy the child nursed too fast and took too much. In dealing with a weak baby the baby was placed on its back and the mother leaned over it to nurse it, thus getting the benefit of gravity to assist in the flow of milk. Why not reverse the conditions and see what gravity would do? The mother was asked to lie on a bed and the child was placed across her in such a way that its head was lower than its body. The way from the breast to the baby's stomach was all up hill and the baby had to work for his food. In this way he took the food more slowly and stopped when he had enough. The plan succeeded, and the mother made a further improvement by sitting in a rocking chair and placing the child over her shoulder head downward.

Dr. Thomas S. Southworth asked if the mother had been asked to make compression behind the nipple with two fingers to limit the rapidity of the flow of milk.

Dr. Herman Schwarz asked if interrupted feeding had been tried and whether the child vomited while nursing or immediately after the nursing.

Dr. Ward Bryant said that it was not the question of time that was so important but the question of how much milk the

child got. He asked if the child was weighed before and after nursing to determine just how much milk he really took.

Dr. J. Finley Bell said that possibly Dr. Northrup had gotten his method of feeding the baby from a study of the customs of the Indian squaw. They slung their babies over their shoulders.

Dr. Northrup, in closing the discussion, said that he had seen the baby but once but that the doctor in attendance had tried all the things he could think of. He did not weigh the baby before and after nursing until Dr. Northrup had suggested it. He did not think the method of pressing the two fingers behind the nipple had been tried. Rest between feedings had been tried. He could not remember whether or not interrupted nursing had been tried. The two elements to think of were the quantity of milk and filling the baby too full. The things to be considered were too rapid feeding and overdistention. The vomiting came on almost immediately after feeding. The stomach would fill up and then the milk would be expelled. It was true that the child took three ounces and then vomited four.

A CASE OF ULCERATIVE ENDOCARDITIS WITH NECROPSY AND BLOOD FINDINGS.—Dr. Kaufman Schlivek reported this case. A child, three years of age, with negative family history and who had had measles two months before her present illness came under his care. She had a cough, fever and a temperature ranging from 103 to 105 degrees F. She complained of inability to stand or walk, had frequent sweats and during the second week of her illness she had four or five movements of the bowels daily. Urination was normal. Her general condition was fair though she looked very sick, was restless, breathed rapidly and was somewhat cyanosed. The sensorium was clear, the tongue coated and dry, the throat red and the lymph nodes slightly enlarged. The patient lay on her right side with her legs flexed on her thighs and her thighs flexed on her abdomen. The lungs showed moist rales on both sides anteriorly and posteriorly, but the expansion was good at the bases. The apex beat of the heart was in the fifth space just

below the nipple, the right beat in the mid-sternal line, and the left beat in the mammary line. The action was rapid, regular and of fair force. No murmurs could be detected. The abdomen was slightly distended, tense and generally tympanitic. No tenderness could be elicited, palpation, however was very unsatisfactory. The spleen was distinctly palpable and there was liver dullness in the fifth space. The extremities were cold and cyanosed. There was no Kernig nor Babinski sign, but there was right knee jerk. The left knee was tender and extension was painful. The white blood corpuscles numbered 27,000; the polynuclear neutrophiles were 67 per cent. and the lymphocytes 23 per cent. The urine was clear, amber, acid with traces of albumen but no sugar. There were a few pus cells and hyaline casts. The diagnosis was puzzling; broncho-pneumonia, malaria, typhoid, rheumatism and sepsis were considered. The condition of the child remained about the same for five days after her admission to the hospital, then petechiae began to appear all over her body. Blood examination was made plated in agar, in agar and ascitic serum, in glucose agar and glucose agar and ascitic serum. Each plate contained one and one-half cc. blood. At the end of twenty-four hours there was a growth on several of the media. The diagnosis of sepsis was certain. The general condition of the girl became worse and the roughness of the first sound at the apex of the heart persisted: *Staphylococcus pyogenes aureus*, 35 colonies per cc. were found in the blood cultures. The first sound at the apex was replaced by a short squeaking, musical murmur, which could be heard over the entire precordium and for a short distance toward the axilla. The diagnosis septic endocarditis was then made. Later the same day the murmur became faintly audible, pulmonary odema developed and the child died. Stimulation and sodium salicylate for a few days was the only treatment. At autopsy the heart was found not enlarged but the mitral valve had a pedunculated, verrucose vegetation, about the size of a large green pea on the upper part of the anterior flap. On this vegetation were two small ulcerations and on either side of the large vegetation was

a small flat one. The lungs were found to be congested and oedematous, the liver was enlarged, congested and showed fatty degeneration. The kidneys were congested but about normal in size, the spleen was enlarged, congested and showed numerous small greyish infarcts. The two reasons for reporting this case were the rarity of the condition and the difficulty of diagnosis. In a collection of 209 cases of malignant endocarditis, Dr. Osler had found but three cases under ten years of age. In a review of the literature of the past fifty years Dr. S. S. Adams had found but 47 cases in children under 14 years of age.

Dr. William P. Northrup said that after eight years of active autopsy work at the New York Foundling Asylum and of less active work for four years more, he knew of but one case of this kind. This specimen had been bottled in Muller's fluid and was waiting for him on his return from abroad. An ulceration was found where the walls of the heart had been whipped by the mitral valve, with characteristic granulations and fibrin. He had already presented the report of this case and specimen to the Pathological Society.

Dr. Herman Schwarz said that there had been two such cases during the past six years at the Mount Sinai Hospital, one a child of seven and the other a child of ten years of age. He said that changes occurred more frequently in the pericardium and less frequently in the endocardium.

Dr. Sidney V. Hass related a case of ulcerative endocarditis in a boy of seven years of age. The boy had urethritis, pus in both kidneys, an abscess in the prostate and gonorrhoeal endocarditis. The case had given a pure culture of gonococcus.

TICS AND THEIR TREATMENT.—Dr. E. W. Scripture read this paper and presented a number of patients to illustrate it. He first showed a patient who screwed his mouth around to the left side. This was a movement that might have been made for a definite purpose by a group of voluntary muscles, but the movement was made unconsciously in some instances; in this case the patient said he made the movement whenever he thought of it. The most usual tics were those of the eyelids, the snorting tic, the sucking tic, the surprise tic of the forehead,

the frowning tic, the grimacing tic, the scalp tic, various tics of the ear muscles, several tics of the chin, the licking and clicking tic of the tongue, several varieties of masticating tics, various tics of the neck, including torticollis, tics of the shoulders, arms, legs, etc. There are also coughing, spitting, swallowing, eructation, vomiting and respiratory tics. In some cases it was possible to trace the origin of the tic as for instance in one patient who had had a speck of dust in his eye and even after the speck was removed he continued to shut his eye tightly. He had known other cases where the snort probably had its origin in the effort to clear the nose. The nasal obstruction was removed but the snort remained. No one had been able to tell why these movements persisted. They appeared to be related to the obsessions so common in childhood, where the person felt compelled to touch every post he passed or to avoid the cracks in the sidewalk. The person affected by a tic could, by an effort refrain from the movement but in most cases he had to seek a favorable opportunity, when no one was looking and perform an extra number of movements. Some of those who were subject to the tic were of neurasthenic disposition. Some neurasthenic children became stutterers and others were affected by tics. In the neurasthenic peripheral irritation was among the various causes that produced tics. Chorea furnished a large number of "tickers." In these cases the irritation might be peripheral or central. Some children acquired tics by imitating others. Some tics might arise from emotional disturbances. These tics developed on a hysterical basis. The tic was distinguished from normal movements by the lack of an adequate cause. Where there was an adequate cause the movement was not a tic as for example a child with a snorting tic was found to possess a large polyp in the nose; when the polyp was removed the movement ceased. This was, therefore, not a tic. The tic was distinguished from the spasm by its mental character. A spasm involved only the spinal reflex arc, it was not modified by attention, distraction or emotion and usually affected the muscles supplied by a single nerve. It was not preceded by a feeling of

compulsion or followed by a feeling of relief. If the convulsive movement continued during sleep it was a spasm; if not, it was a tic. He had had a severe case of torticollis which had been repeatedly operated upon; the movement ceased during hypnotic sleep. The tic was distinguished from chorea by the systematic nature of its movements and the relatively longer pauses. In paramyoclonus multiplex the cramps occurred in single muscles and there were other differences. The term stereotype movements or "habit spasms" should be reserved for movements that did not differ in their form from normal movements; the convulsive character was lacking. He thought the spasmodic movements found in cases of hysteria were genuine tics. The tic of the neurasthenic was often benefited by tonic treatment. The tic due to hysterical condition demanded treatment aimed at the mental condition. One method of treatment that he had found very effective was conscious repetition. The patient was told to hold a mirror before himself and to watch for the tic, and when he saw it he was to repeat it five times voluntarily. His first attempts to imitate himself were often ludicrously inadequate. He was made to persist in the effort to imitate himself exactly until the movement was entirely under his control. The failure of the imitation was especially marked when the tics were unconscious. The patient was advised to voluntarily repeat the movement every time he caught himself making it. He explained this treatment as follows:

The tic was carried out by mental activity of less than full consciousness; the entire act might have become entirely subconscious. Perfect voluntary imitation of the act trained the mind to doing exactly the same act consciously and thereafter the act was no longer an involuntary subconscious one but a voluntary conscious act.

Dr. Scripture then called attention to stuttering, which is a disease related to tics. Both are characterized by the obsessive idea; both arise from practically the same causes. But in stuttering the more the patient pays attention to the movement the worse he stutters; he must learn to speak in an entirely new

way. Dr. Scripture then illustrated his "melody" cure by which the stutterer is taught to speak in a melodious normal voice. Since the stutterer's voice is always abnormal, this gives him a new voice unconnected with his obsession. As soon as he acquires this voice, he ceases to stutter. The cure is sometimes instantaneous, sometimes it requires many months; the time depends entirely on the patient's ability to grasp the idea and hold it.

Dr. Charles Herrman said that, so far as he knew, there was no adequate provision made for stutterers and that there should be a department for the care of these cases in every clinic. As a rule they fell into the hands of non-medical practitioners. The number of these cases was large. He was glad that Dr. Scripture had brought out so forcefully the association of stammering and stuttering with tics. There seemed to be a decided association between these two conditions. He did not know why more attention was not given to tics since they were so common. It might be because they did not seem serious enough to compel the parent to take the child to a physician. He thought that mental torticollis was a tic that should be recognized; this tic was not due to rheumatism or other causes usually given. This was an example of the tonic as against the clonic tic. Many of these cases were operated upon unnecessarily. He had found in the history of these cases of mental torticollis a distinctly neurotic family history, and in addition to the tics there often existed night terrors or enuresis. These neuroses might appear in the patient with the tic or in other members of the family. Many of these children had trouble with their eyes or nose; there might be errors of refraction, adenoids, or other pathological conditions. One should be cautious in promising to cure tics of the eyes or nose by operation. Some cases began as facial tics and then appeared in the shoulders, leg or elsewhere; they did not always remain in one place. An important differential point between tics and chorea was that the tic was repeated in the same place and in the same manner;

while in chorea there was no telling where the next twitch would be.

Dr. L. E. LaFetra said that he had seen many of these cases at the Vanderbilt Clinic during the past two years and had sent them to Dr. Scripture's class in the same institution. A great many of these cases were mistaken for chorea, and he thought that if the distinction was kept in mind between the types of movements, more would receive proper attention than had hitherto.

Dr. B. Onuf said that he wished to say a few words about the differential diagnosis. Athetosis and other involuntary movements resulting from cerebral birth palsies or infantile cerebral palsies otherwise caused might be taken for tics. They sometimes resembled tics sufficiently to make the diagnosis difficult. Spasm of the neck and shoulders, resulting from infantile cerebral palsies was particularly deceptive, being apt to be taken for choreic tic. Reflex spasmodic movements, such as were brought about by some irritation of the conjunctiva or the nasal mucous membrane were a frequent causa movens of tics. In these cases there was usually a combination of reflex and voluntary movements. Presence of a foreign body or of what gave the feeling of a foreign body produced reflex spasm and if the source of irritation continued these voluntary movements became involuntary, being amalgamated with the reflex movement and becoming so automatized that they continued even after the source of irritation was removed. The therapeutic task therefore consisted in transforming the movements into voluntary movements again and thus getting them under control. Dr. Onuf subscribed to Dr. Scripture's statement that chorea might form the starting point for a tic and he had in mind a case in which the tic developed on the basis of a chorea following scarlet fever. He called attention to those cases in which a mental tic was connected with a physical tic, that was, the patient while talking might for instance jump away from the topic of conversation and comment on some object within his range of vision or he might burst forth with some peculiar remark, as for

instance giving the age of a person in inches. In such cases it was very important to subject the person to a system of education. He must be taught to control his actions and his will and sometimes it was indispensable that he should be removed from his surroundings.

Dr. Charles E. Atwood said that he had had an opportunity to see many cases of tic and of stuttering at the Vanderbilt Clinic and while the cases did exceedingly well there under Dr. Scripture, the danger in both nervous disorders was in relapses, and it was always advisable to treat the patient as well as the disorders. It was necessary, not only to ascertain and treat any etiological emotional complex but also to improve and to remove sources of peripheral irritation and improve the general health. In some cases of tic hydrotherapy was useful. In others electricity might be employed to advantage, applying galvanism or the Leduc current to the affected muscles, and faradism to the opposing muscles. There was such a strong mental element in cases of tic that the necessity of a resort to surgery should be most exceptional. It was sometimes difficult to differentiate tics from chorea. In such cases the patient might be given the benefit of arsenic treatment. He asked Dr. Scripture if, in cases of tic involving several sets of muscles, exercises which could be graded would not be useful, or certain movements be supplanted by more graceful ones.

Dr. Louis C. Ager asked if there were any real grounds for supposing that this method of introducing cadence and rhythm into the voice, changed in any way the reflex cerebral arc, or whether it was simply a form of self hypnosis.

Dr. Herman Schwarz asked if there was a distinct difference between stuttering and stammering. He also inquired if there was noticed an asymmetrical condition of the face.

Dr. Henry Heiman said that it was difficult to differentiate tics from chorea. A method used at the clinic was to have the child protrude its tongue. One of the first symptoms of chorea was choreic movements of the tongue. Another method was to have the physician take the patient's hand and then instruct the

patient to look into his eyes; this would check inhibition to a certain extent and produce excitation. Dr. Scripture had mentioned that tics disappeared during sleep; choreic movements also did, even in severe cases.

Dr. Jenkins said that one could tell whether the eyes were involved or not by placing a bandage over them and excluding the light. Many cases of spasm might be overcome by correcting existing astigmatism or hypermetropia.

Dr. Godfrey R. Pisek said that he had treated the first case presented by Dr. Scripture for chorea, and he had cleared up under the ordinary methods of treatment. An ocular defect had been corrected and finally the tic alone remained. It was astonishing to note the change in this case after he had been under Dr. Scripture's care for a few days only.

Dr. E. W. Scripture, in closing the discussion said that there were various methods of detecting chorea, and that of having the patient stick out the tongue and noting the movements was familiar to all. He had never thought of employing for choreic movements the same methods that he had employed for tics. Chorea was due to an infection and using a mirror and imitating the movements rested on an entirely different theory. He did not see how it could work. Bad cases of stuttering were met with in persons of fifty years old and more that were cured. Bad cases were also met with in the young and were very difficult to cure where there was defective will power. Anywhere from one-third to one-half the stutterers could be cured by the general practitioner if he would give a little attention to the methods required. One per cent. of the entire population stuttered. This showed how a man might add to his practice by giving a little attention to this ailment. There was no essential difference between stuttering and stammering. In stuttering the same syllable was repeated over and over again, while in stammering there were general cramps. In cases of complicated tics the patients might be taught to move gracefully and to assume graceful attitudes; this got them out of the habit of having convulsive and irregular movements.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

DR. A. D. SMITH, CHAIRMAN.

MEETING HELD NOVEMBER 20, 1908.

I. A CASE OF INFECTION FROM ALVEOLAR ABSCESS PRESENTING SOME UNUSUAL FEATURES.—By Henry N. Read, M. D. The patient was a female infant, aged 22 months; she had been ill three days, when Dr. Read first saw her. At this time, left eye was entirely closed by an erysipelatous swelling; left side of face from eye downwards was also swollen, but not much discolored. No other marks on head or body. The child was nearly insensible, moaning slightly when examined. Temperature 105° F, pulse 200, respiration 48. Mouth was held tightly closed, and jaws could be separated only a fraction of an inch. There was pus in the mouth, and a mixture of blood and pus was discharged from the left nostril. Heart, lungs and abdominal organs were normal.

History. Child had been well until three days before, when it fell against the stove and struck its face, without seeming to hurt it very much; but it cried all night, and the next day the face was swollen.

The first diagnosis made was alveolar abscess extending up into the antrum.

Dr. Read did not see the case again until three days later. The same symptoms were present, as detailed above; in addition, there were swelling and tumefaction between the eyes. The body was in a state of *spastic rigidity*, so that the child could be lifted with one hand under it and held horizontally. Head was retracted, jaws firmly fixed, Kernig's and Babinski's signs were present; the eyes were crossed, one pupil being much dilated. Temperature 106.5° F, pulse 200, respiration 45. Convulsions

occurred, requiring chloroform to control them. The spastic condition remained even under chloroform.

Mouth. There was an opening in the gum near the left upper canine tooth, and a larger opening further back near the posterior molar. From both, foul pus was discharged, as well as through the nostril. A probe, introduced into the anterior opening readily passed into the antrum of Highmore, and out again through the posterior opening near the molar tooth. The probe could also be passed into the nasal cavity.

Lumbar puncture showed an ounce of fluid under pressure. No organisms of any kind were found in the fluid, which was clear.

A diagnosis of meningitis from infection of the abscess was now made. The abscess cavity was irrigated and drained, the openings mentioned being sufficient for good drainage. The temperature was reduced by sponges; and chloral hydrate, gr. v. q. 2 h was given. In 24 hours there was a marked improvement. Temperature fell to 102, and the cerebral symptoms were improved. The spastic condition and rigidity of jaws disappeared, the eyes became normal, and the child spoke and recognized its parents. Child now swallowed well, and stimulants and nourishment were pushed to the limit.

On the tenth day of the disease, a swelling appeared on the left side of the neck. Throat examination showed nothing. Next day, whole neck was swollen and puffy but not hard. The temperature rose to 103.5° F. Abscess was discharging freely and irrigation was continued.

On the twelfth day, the swelling had extended over the whole front of the chest, and the left shoulder and scapula. Marked air crepitus was felt on palpating this swelling over chest, scapula and shoulder. There was no redness, no pain, and no resistance to the touch. The septic symptoms now returned with great severity.

Pus from the abscess cavity showed streptococci, staphylococci and other organisms, but *not* the bacillus *aërogenes capsulatus*.

On the fourteenth day, the child died, apparently of exhaustion.

Dr. Read closed his paper by saying that this case presented an interesting train of symptoms, at times like tetanus, at other times like meningitis; that he thought the fall which the child had sustained was the cause of an injury to the alveolar process near the canine tooth, and that the tooth either became carious then, or had been carious before, providing the germs for the virulent infection which followed.

Dr. Ager, in discussing this paper, said that he had seen extensive oedema of the neck and chest in scarlet fever, with a severe anginal condition.

Dr. Bartley said that the fall had evidently been the exciting cause of the child's infection. Without the fall, the child might have had a carious canine tooth for a long time without causing any infection.

Dr. Beck asked if there was any sign of a fracture of the maxilla.

Dr. Read, in closing, said there was no evidence of fracture. He thinks carious teeth in children are not uncommon, and, in this case, such a tooth furnished the germs for the infection.

II. BUTTERMILK IN INFANT FEEDING WITH REPORTS OF CASES.—By John W. Parrish, M. D. Buttermilk has been more or less widely recommended, (1) as a sterile acid food (when pasteurized or boiled), (2) as a food plus a remedial agent. Many European observers have reported excellent results from its use for both purposes; but, so far, these results are not confirmed in this country. Dr. Parrish prepares his buttermilk feeding, by taking a quart of commercial buttermilk, adding half an ounce of wheat or barley flour, and boiling for twenty minutes, adding water to make up the loss by evaporation. Cane sugar is added in varying proportions, depending on the case, (usually about 3% of cane sugar is used). Prepared thus, the food contains .09% of butter fat and .75% of proteid; the acidity is .66%.

The important point to remember in connection with buttermilk as a food is that it cannot be kept up for a long time. It is too weak a food for a steady diet. An easy way to strengthen it is to boil it without making up the water lost by evaporation. This increases the strength by one-third or one-fourth.

If the food is to be made from artificially soured milk, (by means of lactone tablets,) remember to use skim milk if a low fat is desired, and whole milk if fat is wanted. If the live lactic acid bacilli are desired, do not boil or pasteurize the milk, as this will kill them.

Dr. Parrish read the case records of twenty-six cases treated during July and August. All of the patients were infants, and all were ill. They were hospital cases, and they had been fed carefully on from one to four other foods before the buttermilk was tried. All were losing weight, or showing evidence of gastro-intestinal disturbances at the time the buttermilk was begun. The other foods tried first were whey, gruels, condensed milk, etc. The buttermilk was intended only to start them on the upward path, and was not continued more than two weeks in any case, and usually not more than one week.

The cases showed a complete failure in 50%; about 33% were improved so that they were able to take other food with continual improvement; the other 17% were improved for a time, but slipped back again while still taking the buttermilk.

The chief cause of the failure was vomiting. Inasmuch as the chief objection to buttermilk, theoretically, is its low proteid content, it is reasonable to suppose that vomiting would have continued if another food was used, as most of the other foods contain more proteid than buttermilk does.

One advantage which buttermilk showed over whey, was the fact of its being less laxative.

Dr. Parrish closed by saying that he merely reported these cases to show the results of his experience; that he did not think the results were very good; that it must be remembered that the cases treated were unfavorable ones for any diet. He de-

sired to know the proper amount of feeding to give an infant; a food like buttermilk should be pushed to the limit of the child's capacity.

Dr. Bartley, in discussion, said that the mixture used was such a weak one that it did not give a fair test of the use of buttermilk. Any sick child who was put on such a weak proteid food would improve temporarily, or at least its symptoms would improve. But the child would be starving for proteid. Personally, he had seen no good results in his own cases.

Dr. Spingarn asked whether lactic acid or the lactic acid bacilli was the antifermentative element.

Dr. Bartley replied that lactic acid was the anti-fermentative.

Dr. Edson had had no success with buttermilk.

Dr. Paul Parrish drew attention to the fact that all cases reported occurred in very hot weather, and he thought that improvement in one-third of them was very encouraging.

Dr. Kinne said that he was glad to hear *Dr. J. W. Parrish* so frank in his paper; for this reason, the good results which he reported were so much more important. Personally, *Dr. Kinne* had had no success.

Dr. Northridge said he considered buttermilk no better than whey. At any rate, we must remember that no artificial food is ideal; one baby's food is another baby's poison. We have to try each case until we find its particular food.

Dr. Beck said that we have one more food to turn to in emergencies. That sums up the value of buttermilk. There is no rule as to quantity of food at a feeding. It is an individual matter.

Dr. Read had had no success with buttermilk. It is a makeshift at best. It is too weak in proteid to be of value as a food.

Dr. Bartley said he had used the rule of feeding that a child should take each day an ounce of whole milk for every pound of body weight. To allow for the part of the milk which is not digested, we had better say an ounce and a half of undiluted

milk, (or its equivalent in proteid) for each pound of weight per day.

Dr. Parrish in closing the discussion, again emphasized the fact that buttermilk can only be used for a very short time. He is sufficiently encouraged by his results to place buttermilk among the foods which sometimes succeed when the simpler foods fail.

THE BETHESDA PEDIATRIC SOCIETY, ST. LOUIS, MO.

JOINT MEETING WITH THE ST. LOUIS MEDICAL SOCIETY,
NOVEMBER 7, 1908.

Dr. E. W. Saunders read a paper, entitled "Causation and Treatment of Infantile Convulsions," for which see page 29.

DISCUSSION.

Dr. George M. Tuttle thought that after the very exhaustive list of causes for infantile convulsions which Dr. Saunders had given, it would seem foolish to attempt to give a list of his own. But the idea he wished to present was that when the physician was called to a child in a convulsion, he must try to decide for himself the cause of the convulsion. He always put the case to himself in this way: that there were two general kinds of convulsions in infancy, those that might be termed functional and those of any organic nature. So far as the treatment of convulsions was concerned, he was glad to hear Dr. Saunders find fault with the hot bath. He was thoroughly convinced that the hot bath, when the child was having a convulsion with fever, was harmful. Certainly the access of the fever was the cause of the convulsion, and if one added to the temperature by giving a hot bath, it was simply adding to the cause of the convulsion.

Dr. John Zahorsky regarded the etiologic classification of convulsions, as given by Dr. Saunders, as a great improvement scientifically, but for practical purposes it seemed rather cumbersome. His own method of determining the cause of convulsions was somewhat different. First, he tried to discover what increased the hyperexcitability of the child. The rectal temperature should be taken at once. If the temperature is over 104° , it could be said that either the fever, or the toxin producing the fever, was sufficient to cause this hyperexcitability, and

after applying the necessary remedial measures to subdue the attack, the cause of the fever should be sought just the same as in a non-convulsive fever. The great difficulty here, at times, is to exclude some cerebral infection, as meningitis, when an infectious process is not located promptly in some other organ.

Dr. Zahorsky believed that in the light of recent researches on spasmophilia, the power of external irritation as a cause of convulsions would have to be placed in a subordinate position. Our theories on reflex causes will have to be changed. He did not regard an adherent prepuce as an important cause, even in repeated convulsions. Several years ago he treated a little boy who had convulsions with each febrile attack by circumcision. The convulsions ceased, but the febrile attacks ceased also. Certainly the fever was not caused by the phimosis. The tendency of convulsions naturally ceases at 3 or 4 years and great care must be taken in ascribing their cessation to the last remedial measure.

Dr. W. L. Johnson thought Dr. Zahorsky seemed to doubt that circumcision would relieve spasms in any case but he had seen several cases that appealed to him as so successful that he could not get away from the idea. Dr. Saunders had quoted one of these. The little boy had repeated convulsions until the doctor and himself feared that they might be epileptic. He was operated upon and had not had a convulsion since that time. He had in mind two similar cases. One was a child six months of age, and until he was three years of age, every time he had a temperature of 102° or 103° or over, he would have convulsions. At the age of three years he was circumcised and shortly afterward had a fever of 106° and had absolutely no convulsion. Another case, a child until four years of age had had convulsions every time he had a fever, but since circumcision he had never had another convulsion. He had in mind still another case, a boy of fourteen years who had had convulsions that were considered epileptic by other physicians. The convulsions occurred chiefly when he was looking at the blackboard and that gave Dr. Johnson the clue to the cause. The patient was sent to Dr. Semple and the vision corrected. The

boy was circumcised and had never had any other convulsion. The most potent factor in this case was probably the eye-strain.

Dr. William Shirmer Barker took up the subject of convulsions in children followed by sudden death where the etiology was very obscure. Occasionally one was called to treat an infant in convulsions of such a grave nature that before anything could be done, in a few minutes the child dies in the spasm. Such cases were very embarrassing to the physician, and search how he may it would often be impossible to find the cause.

Dr. Lippe agreed with Dr. Tuttle that one must have a working basis for the treatment and his classification was similar to Dr. Tuttle's. He also got the age of the baby and tried to determine if there was an organic cause, and the first thing he did was to take the baby's temperature. The skin might be cold and still the temperature be very high. With a temperature of 102° or more there might be an intoxication as the cause of the convulsion. In any case the first thing to do was to flush the bowel. In a febrile case with high temperature a cold pack was the thing to do. A hot bath only raised the temperature and increased the toxicosis.

Dr. Zahorsky said that instead of using chloroform he had been using ether, especially when the child was very ill. Ether was stimulating and was to be preferred in repeated convulsions when the child was in a very weak condition.

Dr. Jules M. Brady, speaking of the postural treatment of convulsions, said that in these cases, as has been demonstrated by Kussmaul and Tenner, there is an acute anemia of the brain. To overcome this, Koplik of New York recommends this procedure and claims satisfactory results: The child's head is lowered, the buttocks raised and the clothes freely loosened. The speaker said he had had occasion to resort to this treatment in only one instance, that of a boy four years of age who had passed through several attacks of convulsions. The result was favorable and he advocated the adoption of this method when the convulsions are repeated.

PEDIATRICS

Vol. XXI

FEBRUARY, 1909

No. 2

ORIGINAL ARTICLES

SYMPTOMATOLOGY AND DIAGNOSIS OF INHERITED SYPHILIS.*

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SYNONYMOUS. The three terms applied to syphilis in infancy and childhood are congenital, hereditary and inherited.

DEFINITION.

CONGENITAL. This means something produced or existing at birth. This term as applied to syphilis is not always true. A child may be syphilitic and yet not congenitally so, because sometimes the first symptoms appear only at a later period than birth. Therefore it is objectionable.

HEREDITARY. This term means descending by inheritance, but it also means something more than this. It means passing naturally from parent to offspring in more than one generation. It should be employed for such conditions as may descend through a number of generations, and this is certainly not true with syphilis.

INHERITED. This means simply to receive from one's progenitors, nothing being implied as to the time of appearance of the disease, or as to whether it will be passed on. It implies only something derived from the parents which is detachable, like a fortune or misfortune, and this more correctly expresses the passing on of the spirochaetae to the offspring. It is therefore the more accurate term.

*Read before the Medical Society of the County of Kings, Section on Pediatrics, Jan. 19, 1909.

SYMPTOMS.

In discussing the symptomatology of inherited syphilis we must begin with the mother. It is impossible in many cases to get any satisfactory history of the disease from the mother, but a syphilitic foetus dies in utero if the infection is virulent. This accounts for the many miscarriages which occur before the infection is sufficiently attenuated to allow the product of conception to go to full term. Therefore a history of repeated abortions or miscarriages is always significant. Evidence of syphilis in the father is not so difficult to obtain, and he should be examined in all suspected cases.

For clinical purposes we can divide the symptoms given us by the child into

1. Symptoms at birth.
2. Symptoms during the first three months.
3. Late symptoms.

1. SYMPTOMS AT BIRTH, OR FOETAL SYPHILIS. Symptoms at birth are present in only a small number of cases and show a virulent infection. The skin may show an eruption of pustules, papules or bullae. The bullae are usually present upon the soles and palms, but may be found elsewhere. This is the "syphilitic pemphigus." The bullae are at first small, from a pea to a penny in size, but later coalesce and form lesions as much as 2" in diameter. They are situated on disc-shaped brownish red spots. They contain a turbid serum, which is sometimes tinged with blood and sometimes yellow from pus. Streptococci, staphylococci and spirochaetae are found in the bullae. The general appearance of the infant is quite characteristic and shows marked wasting and wrinkled skin. The temperature is subnormal. The spleen is invariably enlarged, and the liver generally so. These infants usually die within two weeks.

2. SYMPTOMS DURING THE FIRST THREE MONTHS. EARLY INHERITED SYPHILIS. In suspected cases if three months pass without symptoms the child can usually be considered exempt is a rule stated by many good authorities. In making this artificial division of the first three months I realize that it is not a hard and fast division, because I myself have notes of two cases where the eruption appeared first at 12½ and 15 months respectively. Nevertheless it is a convenient division and holds in the majority of cases.

A practical point in connection with this period is this: In suspected cases do not vaccinate an infant during the first three months, and the parents cannot then accuse you of having inoculated the child with syphilis, a thing which they are very ready to do.

Generally these infants appear healthy at birth and remain so for a variable time, but here again, the more virulent the infection the earlier the symptoms make their appearance.

The first evidences of syphilis in children that are born healthy are disturbed general health, nervous unrest, increased tension in the fontanelle, a rise in temperature and no gain in weight, or too little gain in weight.

MUCOUS MEMBRANES, NASAL. In most cases this is the first local symptom and appears before the eruption. Beginning like an ordinary inflammation of the nasal mucous membrane it is accompanied by some hypertrophy, which accounts for its persistence and severity. There is a copious discharge of mucus and serum, often tinged with blood. Crusts form which produce nasal obstruction with its accompaniments of difficulty in nursing and discomfort from dry mouth. There is a very characteristic snuffling sound accompanied by a moist rattling sound due to the mucus. In untreated cases the process may go on until it involves the submucous tissue, causing ulceration. The coryza is accompanied by more or less laryngitis with chronic hoarseness, laryngismus stridulus, or rarely laryngeal stenosis.

FISSURES AND MUCOUS PATCHES. These are the greatest help in the diagnosis of inherited syphilis. They are most common upon the lips and about the anus, but occasionally they occur about the nostrils. These fissures are real ulcers, deep and painful. Mucous patches are common at the muco-cutaneous surfaces and where the skin is thin. They are most common about the lips, anus, scrotum and vulva and in the axilla. They are whitish in color and raised rather than excavated.

ULCERS may be present upon any of the mucous membranes. Upon the tonsils they give the appearance of a diphtheritic membrane, but negative cultures reveal their true character. In the intestines there occurs the syphilis annularis intestini of Mracek. In this condition the inflammation is especially localized in Peyer's patches, but there is also a diffuse thickening of the gastro-intestinal mucous membrane, which is the result of inflammatory cell infiltration, and is accompanied by a partial disappearance of the glandular elements. These changes in the intestine explain many of the intestinal symptoms in the absence of vicious feeding.

SKIN. The eruption commonly occurs about a week after the coryza, but the two may come on at the same time, or the coryza may be absent or so slight that the eruption appears to be the first symptom. The eruptions may be divided into

1. THE DIFFUSE ERUPTION.
2. THE DISCRETE ERUPTION.
3. THE SQUAMOUS OR SCALY ERUPTION.
4. THE IRRITATED ERUPTION.

1. THE DIFFUSE ERUPTION. Occasionally one meets a diffuse red rash, resembling the rash of scarlet fever, only not so bright, and without the punctate appearance. It is present on all parts of the body even the palms and soles, but is most marked upon the face. It is accompanied by a slight infiltration of the skin, but seems to be mainly erythematous as it fades markedly on pressure. The characteristic macules are not associated with it.

2. THE DISCRETE ERUPTION. This is the common eruption, consisting of disc-like patches of a bright red, later coppery red tint. It is characteristic of these disc-like lesions that they tend to be uniform in size and attack all parts alike. They are most abundant upon the napkin region, the face and neck, the palms and soles, and less abundant on the trunk. They may be erythematous and leave only a brownish stain after pressure, or there may be some infiltration, and so a maculo-papule results. After a time the spots may be covered by white dry scales, which are easily detached, leaving a collarette at the periphery. The eruption disappears slowly, leaving a pigmentation of the skin which lasts for a long time. Papules are not often seen alone but are usually associated with the macules. They are hard especially on the palms and soles.

3. THE SQUAMOUS OR SCALY ERUPTION. This scaly eruption is most marked upon the palms and soles, and is rarely seen elsewhere. In some cases the scales are very large upon the palms and soles and are about the only cutaneous manifestation.

4. THE IRRITATED ERUPTION. The lesions about the anus and mouth, or in the moist flexures such as the axillae or the groins, often become excoriated, producing mucous patches or shallow ulcers. Ulcerated lesions on the skin apart from the moist areas are rare.

NAILS. Paronychia ulcerosa causes ulceration at the base of the nail with involvement of the matrix and exfoliation of the nail itself. Onychia sicca causes the claw shaped nail, giving it the appearance of being pinched together by a pair of forceps.

BONES. (*Pseudo-Paralysis*). The history usually obtained is that loss of power did not exist at birth, but was noticed first when the infant was a few weeks old. This loss of power involves one or more of the limbs, and the parts are tender when handled. The arm is frequently held in marked inward rotation, with the palm looking out, very closely resembling Erb's palsy. Examination shows that the loss of power is more apparent than real, and is due either to pain, or to separation of the epiphysis. The electrical reactions are normal. This acute epiphysitis, resulting in a separation of the epiphysis, is essentially a fracture in the subchondral granulation tissue or in the columnar cartilage. The fracture is due to a lessening of den-

sity, to trauma, and to muscular action. It is estimated the pseudo-paralysis occurs in 10-15% of the cases of inherited syphilis.

CRANIOTABES. The bones of the head, especially in the occipital region frequently give the spongy feel or the fine crackling sensation under the finger known as craniotabes. This is due to the development of granulation tissue, and the failure of osteoblastic formation. The subperiosteal development of granulation tissue, and the consequent calcification gives the hyperostosis, found especially in the frontal and parietal regions.

BLOOD AND BLOOD VESSELS. Examination of the blood in these cases shows a reduction of the haemoglobin, and a diminution in the number of red blood cells. Nucleated red blood cells are also found. There is a diminution in the number of white blood cells, with a relative increase in the lymphocytes, and a relative decrease in the polynuclear neutrophils. Myelocytes may be present.

BLEEDING may occur from the bullous eruption on the skin, or from the fissures about the mouth or the anus, but in the virulent infections there are multiple haemorrhages, from the cord, into the mucous membranes and into the skin, due to lesions of the blood vessels. These lesions consist of infiltration of the walls of the blood vessels, and consequent narrowing of the lumen.

CEPHALHAEMATOMA is especially apt to occur in syphilitic infants due to this lesion of the blood vessels.

LYMPH GLANDS. Enlargement of the lymph glands is nearly always present. The anterior and posterior cervical, the axillary, the inguinal, the epitrochlear, and the glands in the 4th and 5th intercostal spaces at the side of the thorax are palpable as discrete firm enlargements. They never assume a very large size. The posterior cervical, and especially the epitrochlear are of diagnostic importance.

VISCERAL SYMPTOMS. SPLEEN. This has been enlarged in every undoubted case of early inherited syphilis in the active stage which I have seen. All authors are agreed that it is a very constant symptom. The enlargement is not great as a rule, and varies from the free border of the ribs to two or three fingers below the free border.

LIVER. Enlargement of the liver is usually an accompaniment of enlargement of the spleen. It is not so constantly present, however, and in recording that the liver is large during the first three months we must remember that in normal infants the liver is palpable below the free border of the ribs during this period, and allow for this. When enlarged the edge is firm and sharp.

INTESTINES. Disturbances of the intestines are frequent. In the cases where there is only infiltration of the mucous membrane they may amount only to intestinal indigestion. In the cases where the intestines are more seriously involved the symptoms of an obstinate colitis are present. As intestinal disturbances are so frequent in subjects of malnutrition, it is very often a question of nice judgment just how much of the disturbance is due to the syphilis.

SPECIAL SENSES. Otitis media occurs as a direct extension from the inflammation of the nasal mucous membrane. The rupture of the drum membrane gives egress to a muco-purulent secretion. This otitis media is a different thing from the sudden deafness which occurs later, this deafness being due to labyrinthine involvement.

3. **LATE SYMPTOMS.** **LATE INHERITED SYPHILIS.** The onset of these symptoms comes at any time during childhood or at puberty, but rarely later than this. These symptoms are for the most part such as would be classed as tertiary in the acquired disease.

TEETH. There is nothing characteristic of syphilis about the teeth of the first set except their proneness to early decay. The characteristics of syphilis are shown in the teeth of the second set or the permanent teeth. Only the upper central incisors are to be relied upon. These are the so-called Hutchinson's teeth, and have each a single notch in the center of the edge. The notch is usually shallow and more or less crescentic. The enamel is usually deficient in the center of the notch, and the tooth here is apt to be discolored. The teeth are not so flat as the normal incisors, but are often round and peg like. They are not properly placed and are apt to incline to one side or the other. Henry Moon a number of years ago also described a deformity of the first molars which is also characteristic. These are reduced in size and dome shaped. The teeth of the second set as well as the first show a tendency to early decay.

BONES. The bones show the result of a former osteo-periostitis. On the cranial bones we find the prominent bosses, giving the square forehead in the frontal region, and the bosses on the parietal bones. In the tibia it gives the typical sabre-like deformity. Nodes on the cranial bones are always due to syphilis.

FINGERS. **SYPHILITIC DACTYLITIS.** In the involvement of the bones of the fingers, the bone of the proximal phalanx only is first involved, giving it a bottle shaped appearance. The distal phalanges become involved later, when it assumes the shape of a tenpin. The index finger is most frequently involved. There is a tendency to multiplicity, and sometimes to symmetry.

Any of the other long bones may become the seat of a process analogous to that in the fingers.

LYMPH GLANDS. The same glands are enlarged in this stage of the disease as described under early inherited syphilis. The diagnostic value of the epitrochlears is very great in the absence of other causation. The posterior cervical have not so much diagnostic value.

SKIN. The most important of the later skin manifestations is the formation of gummatous tumors. In the early stage they are indurated, elastic and of a grayish color. When neglected they break down, leaving large deep ulcers. They have a rounded, thickened, indurated border, and a base which is depressed and has the appearance of being scooped out. They leave a smooth white scar. The most frequent sites of these scars is the upper part of the legs or thighs, the face is also a favorite site.

SPECIAL SENSES. Interstitial keratitis is the most frequent form of eye involvement. Both eyes are usually affected, and the severity varies from a slight haziness to complete opacity.

Choroiditis also occurs. Iritis frequently leaves behind its mark in the shape of synechiae.

CHRONIC OTITIS MEDIA may be the result of the acute process. The onset of sudden deafness without pain and without discharge is due to labyrinthine involvement, and in childhood is almost invariably due to syphilis.

NOSE AND PALATE. Gummatous deposits in the nasal mucous membrane may cause a protracted fetid discharge, ozena. It may go on to destruction of the nasal cartilage and septum, as a result we get the falling in of the bridge of the nose giving the saddle back appearance. There may also be ulceration of the soft palate leading to perforation.

TESTICLES AND OVARIES. When these are attacked early fibrosis and atrophy follow and a condition known as infantilism is produced.

JOINTS. An effusion into the joints sometimes occurs, which may be either irregular or symmetrical. In the osteo-anthritis or osteo-chondritis syphilitica of Wegner the joints are usually involved. This joint disease is not progressive, and there is no destruction of tissue. As a result of thickening of the bones and soft parts there may be limitation of movement which may be permanent.

VISCERA. As in the earlier period the spleen and liver may be enlarged, but not with such regularity as in the active stage.

NERVOUS SYSTEM. As a result of the action of the disease on the nervous system, there may be mental defect, epilepsy.

convulsions, meningitis, tabes dorsalis, paresis and hydrocephalus.

The mental defect may even go so far as to produce idiocy.

Tabes dorsalis affects males and females equally, and differs in no respect from that in the adult.

All the nervous symptoms with the exception of hydrocephalus are rare.

DIAGNOSIS.

MICROSCOPICAL. It is pretty generally agreed by most authors that the microscopic diagnosis of syphilis, both congenital and acquired, consisting of the recognition of the spirochaeta pallida has now reached the stage where it can be relied upon. The spir. pal. is a spirillum with a flagellation at each end. It is very mobile, and has three forms of movement, a lashing, spiral and to and fro movement. With Giemsa's fluid it stains a pink color, while the spir. refrigerans, the only organism likely to be confounded with it, stains a dark purple. It is about the length of a red blood corpuscle, and has 8 or 10 close set curves. The refrigerans has only 3 or 4. It is obtained in scrapings from the chancre, ulcer, condylomata, etc., and in the juice from the glands withdrawn by a hypodermic needle, and in the blood expressed from the rash. It is never found in gummata or in the tertiary lesions. The material obtained should be spread on a cover glass, allowed to dry, and fixed with absolute alcohol for 10 minutes. Pour off the alcohol and allow to dry. Use

 Giemsa's stain (must be bought) 10 drops.

 Distilled water 50 drops.

 Potassium carbonate (1 in 1000 in distilled water) 1 or 2 drops.

Flood the cover glass with the mixture and allow to stain for $\frac{1}{2}$ hour, wash for a minute or two in distilled water, dry and mount. Examine with the highest eye piece and 1-12 oil immersion lens.

Although I have made several attempts I have never yet identified the spirochaete, in inherited syphilis, probably through some failure in the technique.

CLINICAL. In most cases in early inherited syphilis the coryza, the eruption, labial fissures and mucous patches about the lips, anus and genitals, the enlarged spleen and general cachexia make the diagnosis easy. But there are many cases where the diagnosis is not so easy and it may be extremely difficult.

Late inherited syphilis leaves certain stigmata and those upon which most reliance can be placed are:

1. General disturbances of development, especially at the time of puberty, resulting in infantilism, dwarfism and retarded sexual development. Enlarged epitrochlear glands are also significant.

2. Scars. Smooth white scars on the skin, linear scars about the mouth and anus, and scars on the palate and pharynx are evidences of the march of the disease.

3. Skeletal. These comprise the thick frontal and parietal eminences, hydrocephalus and microcephalus, falling in of the bridge of the nose and sabre-like deformity of the tibia.

4. Hutchinson's triad, consisting of lesions of the teeth, eyes and ears. It is to be remembered that only the upper central incisors of the permanent set are Hutchinson's teeth. The eyes show leucoma, opacities of the cornea, and irregular pupils. Sudden deafness has been mentioned previously.

The diagnosis from

TUBERCULOUS ULCERS. These usually have soft, flat edges and do not extend so deeply. They are more irregular in outline and the scar is purplish in color, fading slowly. Tubercle bacilli may sometimes be isolated from them. Often the diagnosis between the syphilitic ulcer and the tuberculous ulcer can be made only by the effect of treatment.

PHYSIOLOGICAL SNUFFLES. This is sometimes met in the new-born, and is due simply to swelling of the nasal mucous membrane. It is to be distinguished from syphilitic coryza.

INFLUENZAL NASAL CATARRH. This is always accompanied by symptoms in the pharynx, larynx or bronchi, which are absent in syphilitic coryza.

BEDNAR'S APHTHAE. This gives a peculiar butterfly shaped ulceration of the hard palate. This cannot be confounded with syphilis when it is remembered that syphilis of the mouth and pharynx is very rare in infants.

NERVOUS SYSTEM. In regard to syphilis of the nervous system Hochsinger of Vienna says: "It is an important fact that syphilitic brain disease may occur in infancy without any preceding evidence of the disease, and that the striking result of anti-syphilitic treatment in many affections of the brain accompanied by epileptic seizures in earliest childhood reveals the syphilitic origin of the disease."

SIMPLE INFANTILE ERYTHEMA. a. **SIMPLE ERYTHEMA.** Erythema occurs on the prominent convex surfaces of the buttocks, thighs, scrotum or vulva, and extends to the lumbar region, lower abdomen, calves and heels. It usually forms an uniform shining red surface upon the convex surfaces, leaving free in marked contrast the flexures and sulci between. It is found mostly in very young infants.

b. ERYTHEMA-VESICULAR OR EROSIVE FORMS. Here there is a basis of erythema and towards the center of the convex surface there are small bright red, disc-like erosions in groups of 2-12. They may coalesce. Generally at the margin there are small flat vesicles which represent the early stage. It is commonly found in babies a few months old.

c. ERYTHEMATO-PAPULAR OR POST-EROSIVE FORMS. This is a later stage of the last form in which the erosions have thrown up flattened granulations, giving the appearance of papules. In this lesion the papules are flat, bright red or dull red and arranged in groups which may or may not be on an erythematous base. It is never found in the flexures or sulci. It may be associated with erythema of the heels or lower abdomen.

d. ULCERATIVE FORMS. The erosions instead of granulating become further advanced so that ulcers are formed. The ulcers are punched out, sharply margined, circular or oval, often running together. They are situated usually on the scrotum or neighboring parts, and avoid the sulci and flexures.

The points to be borne in mind in distinguishing these various forms of erythema from the syphilitic rash are:

1. Erythema is situated on the convex parts of the buttocks, thighs and genitals, and in extensive cases the lower abdomen, calves and heels.

2. Erythematous lesions are absent from the face, palms and soles.

3. Erythematous lesions do not have the characteristic coppery color.

4. Other symptoms of syphilis are absent, snuffles, fissures of the lips and hoarse cry.

IMPETIGO CONTAGIOSA. In young infants the lesions retain their impetiginous character instead of drying up into the crusts. They attack the face and napkin covered areas as well and are found in the flexures. Here they form excoriated areas by mechanical rubbing off of the phytenules.

PEMPHIGUS NEONATORUM. This must be distinguished from the bullous syphilide seen rarely at this period. In pemphigus neonatorum the lesions appear a few days after birth. The child is usually well nourished and the bullae tense. In syphilis the palms and soles are involved, the bullae ill formed and often mere raw surfaces. They are born with the eruption and are always much wasted.

SEBORRHEIC DERMATITIS. This is distinctly parasitic. The eruption occurs over the whole area covered by the napkin. It forms a bright red sheet with a granular looking surface from the presence of small moist or greasy looking scales. The margins are sharply defined. In the flexures it is moist and oozing. Beyond the margin there are pin head sized, red, scaly

papules, coalescing sometimes. It is not confined to the napkin region, but occurs also behind the knees, around the umbilicus, in the axillae, on the neck, behind the ears, and in the labio-nasal sulci. The scalp is invariably the seat of a red scaly eruption at the vertex. The mother always has seborrhoea capitis. It is readily removed by mild sulphur or boric acid ointment.

The chief points of distinction about this eruption are:

1. The child has a healthy, clear complexion.
2. The lesion has a bright red color and a granulating surface.
3. There are outlying scale-topped papules.
4. The flexures are particularly involved.

TUBERCULOUS DACTYLITIS. This may be confounded with syphilitic dactylitis. Tuberculous dactylitis is much more frequent. There may be a family history of tuberculosis or there may be other lesions of tuberculosis. The ophthalmo-tuberculin test is positive. In syphilitic cases the lesions are much more often multiple, sometimes symmetrical, and other manifestations of syphilis are present. It improves under anti-syphilitic treatment, which is not the case with the tuberculous form.

SCURVY. Acute epiphysitis may be confounded with scurvy. Scurvy is rare before the 8th month, and there is usually the history of some food which has been boiled. It is cured by dietetic treatment.

ERB'S PALSY. Acute epiphysitis may also be confounded with Erb's paralysis. The latter commonly occurs after an artificial delivery. The arm hangs lifeless at the side; it is rotated inward, the forearm pronated, the palm looking outward. The muscles paralyzed are the deltoid, the biceps, brachialis anticus and supinator longus. The triceps escapes.

TUBERCULAR DISEASE OF THE LONG-BONES usually affects the articular ends. Syphilis nearly always the shaft. Syphilis has the nocturnal pain, the tenderness and the peculiar deformity, and the other manifestations of syphilis.

In conclusion it is to be borne in mind that when the diagnosis cannot be made either microscopically or clinically, it may be established by the result of anti-syphilitic treatment.

CLINICAL NOTES ON HEREDITARY SYPHILIS.*

BY BENJAMIN EDSON, M. D.

In January, 1908, I was called to see a female child about 3 months old belonging to a reputable family. It was the first child, father 24, mother 19 years of age.

At birth the child was said to have been free from blemish, apparently healthy, but when about 4 weeks old, snuffles developed, followed by multiform eruption covering face, body and limbs. The lesions were mainly superficial, but there were some deep ulcers. The mouth, vulva and anus were furrowed with deep rhagades pouring forth abundant foul discharges. The nostrils were filled with sanguineous muco-pus, most filthy, making respiration difficult and at times almost impossible.

The child was nursed by the mother, and although of full weight and in fair condition at birth, it was now little more than skin and bones, with weazened features pinched and drawn with the characteristic look of old age—in short, it was a typical case of congenital syphilis.

The attending physician, it was said, gave the disease some placeboic name and pronounced it incurable. I placed the child upon antisyphilitic treatment both internally and by inunction, and in a few weeks the lesions cleared up, and to-day it is a clean bright, fairly nourished child, apparently free from evidences of syphilis. In the summer it had the nearest approach to cholera infantum of any child that I saw during the season, but it recovered in due time. Of course the child is still under treatment for the specific disease.

This case presents no rare or unusual features. It is a common every day case such as you are all familiar with. The point to which I wish to call attention, concerns the *source* of the infection. From careful investigation and inquiry I am unable to find that the young mother has ever had any lesion or symptom indicating that she has ever been in any way infected with syphilis. No sores, no sore throat, no eruptions, no headache, nothing in fact that would indicate syphilitic taint.

The father was formerly a man-about-town and admits having had chancre two or three years ago with subsequent secondary manifestations, but had supposed himself cured as there

*Read at a meeting of the Medical Society of the County of Kings, Section on Pediatrics, held Jan. 15, 1909.

remained no obvious evidences of the disease. So he took upon himself the responsibility and ventured on marriage without the advice or consent of any physician.

The indications are, both from the history and present conditions, that the child derived infection solely through the father, while the mother apparently escaped the disease. And here arises the question: Is or is not this mother infected—is she a syphilitic? Had this child with its foul mouth and poisonous nasal discharges been put to suckle a wet nurse free from syphilis, the chances are ten to one that such nurse would have contracted syphilis from the child. But according to Colles—"a syphilitic child with ulcerated lips has never been known to infect its own mother."

May it not be true that in such cases the mother is protected by having a mild, even undiscoverable form of the disease, analogous to the protection from small pox afforded by vaccination, or by closer analogy the protection from variola by inoculation as formerly practiced?

A pretty conclusive solution of the question might be reached by mating a woman thus presumed to be rendered immune after having a diseased child by a syphilitic father, with a man known to be absolutely free from syphilis, and noting the result. Doubtless there have been such cases of pairing, but I have seen no record of them.

Bauer, following the experiments of Wasserman, by injecting extracts of the organs of syphilitics in over 200 cases seems to have demonstrated that even where the mother of a syphilitic child gives no appreciable sign or symptom of being herself syphilitic, the disease is in reality latent in her system, and still further, that children born of syphilitic parents but showing no indications of the disease, are in reality immune to the disease. If fully and finally confirmed, these demonstrations settle pretty conclusively the status of these mooted questions.

This case also opens up another field of inquiry. This mother is again pregnant. Neither father nor mother has had any specific treatment, since their marriage. Should not the mother be put upon anti-syphilitic treatment in the interest of the unborn child? Without it she will probably bring forth another syphilitic child should she perchance escape the imminence of abortion. Is such treatment effectual?

Nearly 40 years ago I saw at the Dispensary of the L. I. C. H., a woman of the town, hailing from the then classic precinct of Hicks or Columbia Street—a woman suffering from advanced tertiary syphilis. Her face was disfigured, nose partly eaten away, pieces of her skull had been removed and on the whole she was one of the most rotten and repulsive human beings I ever saw. So bad was her face that she kept it constant-

ly covered with a veil. She visited the dispensary to obtain relief from excruciating pain of the bones due to syphilitic osteitis. She returned from time to time and was kept upon what was then considered enormous doses of K. I.—some 100 or more grains daily, if I remember rightly. At length she disappeared for a little time, and when she did return she opened the ball by the announcement, "I've had a baby since I was here last." I well remember the astonishment of Dr. L. D. Mason. "Good God! Was it alive?" Her reply was, "Certainly. Why not?" The putative father in this case may reasonably be represented by X—condition unknown and uncertain.

It so happened that the child then procreated and born came under observation a number of times for talipes varus for which there was no cutting operation. The mother was instructed how to rectify the deformity by manipulation, which was done with a reasonable measure of success. Still further during that time the child was vaccinated by some one with no untoward result. While this child was under observation it exhibited no trace, mark or indication of inherited syphilis. I then lost sight of the case. The presumption was that the large doses of K. I. taken by the mother had saved the child from infection. The chief points I would present are:

1. Child with congenital syphilis, the mother not apparently infected.
2. Mother with severe tertiary syphilis, fetus escaping manifestations of the disease through suitable treatment.
3. In pregnancy in woman from syphilitic father and presumably immune mother, is preventive treatment of avail to save the child?

P. S. This paper would be incomplete without a post script or addendum.

On September 29th, at about the 5th month, Mrs. W. mentioned in the first part of this paper, aborted with *an* encephalitic monster. The eyes were atop of the head, and with the tapering body and legs its appearance was very like that of a large frog. It never breathed, but the limbs moved enough to warrant giving it the benefit of baptism.

During all the time the mother carried this fetus she scarcely saw a well day. She suffered from abdominal and gastrointestinal pains, loss of appetite, grew thin and haggard, and was practically an invalid.

Since being delivered from this incubus her health has been good and her condition excellent. In this case anti-syphilitic treatment proved of little benefit to either mother or child.

PICK'S DISEASE WITH REPORT OF CASE IN A CHILD OF THREE.*

BY J. L. RUBINSTEIN, M. D.

In 1884 Curschmann¹ described a peculiar symptom-complex under the name of Sugar-cake or Sugar-coated liver (*Zucker-gussleber*), the most striking lesion being a white, glossy thickening of the peritoneal covering of the liver which is the seat of cirrhosis. In addition to this, pericarditis, pleuritis and peritonitis—i. e. polyserositis—are also present. Since then various authors² reported similar cases. In 1896 F. Pick³ reported three cases in which he pointed out that the original pericarditis was the starting point of the whole array of changes ending in the cirrhosis, and he proposed the name of Pericarditic-Pseudocirrhosis of the liver (*Pericarditische-Pseudolebercirrhose*). This name or simply Pick's Disease has since been used.

Among the literature the case of Fløystrup and Scheel⁴ is the most interesting and instructive inasmuch as the patient himself was no other than Prof. Niels R. Finsen, whose own observations and experiments upon himself are largely quoted.

Finsen was born in 1860. There was a family history of cancer and heart disease among his grandparents. At the age of 2 he had meningitis (?), at 13 pneumonia, at 16 icterus, a few years later acute nephritis, at 21 measles. In boyhood he had several transient attacks of "anemia of the brain," and it was often remarked that he looked cyanotic. For about 5 years beginning in 1883 (at the age of 23) he felt a sensation of pressure, weight, tension and finally actual pain in the abdomen. At first this occurred only after meals, later also upon the least exertion. Then developed pain in right shoulder and over the præcordial region. The abdomen was enlarged, the liver reached down to the umbilicus and the spleen three fingers below the ribs. Urine negative. In 1890 (at the age of 30) ran a mild temperature for some time, without any apparent cause. In 1891 liver reached 2 fingers below the umbilicus. There was a splitting of the 2nd sound of the heart. He passed between 800 and 900 c.c. of urine in 24 hours (instead of the normal amount of 1,200 to 1,500 c.c.), and ascites developed. At first he controlled the ascites by means of a moderately dry diet containing about 500 c.c. of liquid. Later when diuresis diminished

*Presented at a meeting of the Bronx Medical Society, N. Y., 1908.

to about 450 c.c. in 24 hours, and the ascites increased he had to resort to a more strictly dry diet, and the use of magnesia usta (8.0 per dose) as a hydragog or ammonium chloride (5.0 per dose) as a diuretic. Under this regime he enjoyed fairly good health for several years. Under the dry diet the blood becomes concentrated and absorption of the effusion through the lymphatics occurs; intraperitoneal pressure diminishes and the removal of this pressure exerted upon the liver and kidneys improves the circulation through these organs and favors diuresis. This theory explains Finsen's further observation that diuresis increased during diarrhoea or diaphoresis.

In 1893 he developed infarcts in the lungs, and he felt and was worse. He tired of the dry diet. In 1896 his abdomen was punctured for the first time, and between 6 and 7 litres of fluid were removed. Until his death abdominal paracentesis was performed 18 times. Sp. gr. of the fluid 1019 to 1023, albumin 5%. Infarcts occurred occasionally, and there was, the last few years of his life, a decided pleurisy with a constant effusion on the right side.

In 1903 he began to experiment with a salt-poor diet. At first he excluded salt as a condiment, then he used weighed amounts of salt as a condiment but completely eliminated it in baking and cooking his food in order to determine and control the amount actually taken. He measured also the quantity of fluid he daily ingested, and he found that diuresis was constant (510 to 735 c.c. in 24 hours) in spite of the daily varying amounts of fluid taken. He found that he passed less NaCl. than normal—3 grms. instead of 15 in 24 hours—but under the salt poor diet he began to excrete more of it than he was ingesting, and he came to the conclusion that there had been a retention of NaCl. in his system owing to impaired excretion. This retention was a contributing cause to his ascites; the excessive amount of NaCl. in his tissues drawing, according to the law of osmosis, water from the blood. Increased thirst then supplies the blood with water which again goes to increase the effusion. Under the salt-poor diet the opposite takes place; the body eliminates more NaCl. than it ingests, the blood to keep its percentage of NaCl. steady draws the salt from the effusion and with it the water. By means of this diet he managed more or less to control his ascites when other means failed, and he minimized the number of paracentesis required. In the summer of 1904, however, he began to decline rapidly, and he died suddenly in September of that year.

Autopsy: Right pleural effusion—300 c.c., sp. gr. 1015, alb. 1.5%, NaCl. 0.54%. Left pleural effusion—500 c.c., sp. gr. 1016, alb. 1.6%, NaCl. 0.56%. Extensive adhesions of lungs with ribs and diaphragm. Pleura thickened. Muscles of dia-

phragm hypertrophied. Both lower lobes of lungs atelactatic. No infiltrations, no infarcts, no tuberculosis. Pericardium adherent to lungs and to sternum. Visceral and parietal layers of pericardium intimately adherent in several places. In parietal layer were several calcine deposits. Ventricles of heart thin, trabecullae and papillary muscles poorly developed. Auricles normal. Auriculo-ventricular orifices large—four fingers wide. Valves normal. Myocardium flabby and friable. Peritoneal cavity contained 500 c.c. of clear fluid—sp. gr. 1029, alb. 3%, NaCl. 0.5%. Liver somewhat smaller than normal, and covered by a pure white, glossy, thick, sugar-cake-like peritoneum. Same appearance of peritoneum covering spleen, lower surface of diaphragm and upper part of abdominal walls mainly on the right side. Liver tissue tough, connective tissue increased. Cut surface granular and marble-like, having hyperemic areas. Hepatic cells atrophic, in some places necrotic. Connective tissue islands in some places where cells were entirely gone. Spleen very large and adherent to colon and to abdomen, hyperemic and cirrhotic. Parts composing the sigmoid flexure adherent to each other. Kidneys hyperemic, otherwise normal.

The pericarditis seems to be the oldest lesion, being the seat of calcification: it was probably the starting point of his disease. The solid pericardium prevented the development of the heart. Gradually it became inefficient, and functional insufficiency of the mitral and tricuspid valves occurred. This condition gave rise to stasis in the abdominal organs with consequent increase in connective tissue in the liver and spleen. By extension the pericarditis gave rise to the pleurisy and to the peritonitis over the diaphragm and upper part of the abdomen and over the liver and spleen and hence the ascites.

In Finsen's case as well as in all other cases the ascites is the dominant feature. It develops slowly, is usually hard to get rid of and recurs after aspiration. The fluid has high sp. gr. (1020) and contains high percentage of albumen (3%); hence it is an exudate and not a mere transudate. The liver is enlarged at first, shrinking later. In the majority of cases there is an initial heart disease which later gives rise to signs of insufficiency. In only a few cases is there slight anasarca present. Generally symptoms of pleurisy precede death.

At autopsy chronic peritonitis is the most constant finding. The affected parts, especially the liver and spleen, have the appearance of sugar-cake (Zuckerguss)—white, glossy, porcelain-like. In a number of cases tuberculosis is found. In one of Pick's own cases there were no peritoneal changes whatever and the ascites was due to the cirrhosis of the liver. This particular case might perhaps be considered as an ordinary cirrhosis of the liver complicated by pericarditis. Usually the liver is cirrhotic

and smaller than normal, having passed the stage of hypertrophy. In some instances the liver parenchyma is only congested or even normal. The spleen is usually enlarged. The pleura is generally thickened and adherent, and there is usually a right sided effusion. In the majority of cases there is an old adhesive pericarditis often with calcification. There are cases, however, in which the pericardium is normal. In several instances there are other cardiac lesions such as valvular disease, myocarditis and aortic aneurysm. In one case there were no thoracic changes at all. Tubercular mediastinal glands are often encountered.

My own case, which falls in the same category as the above, is interesting as being probably the youngest case on record.

I. A.—Male, 3 years old, foreign born, normal delivery, breast fed. No history of tuberculosis or syphilis in the family.

Born in April, 1905. In December, 1907, he contracted whooping-cough and the next month scarlet fever. The cough persisted for months and often recurred. In May, 1908, the child's abdomen began to swell and was tender, and there was dyspnoea. He sweated profusely during sleep (day or night). The patient was presented to me about the middle of July, 1908. I found the abdomen markedly distended—66 c.m. in circumference—the umbilicus having protruded to the extent of 1.5 c.m. The abdomen was markedly tympanitic and so tense that palpation of the abdominal organs was impossible. There was decided ascites and some pleural effusion on the right side. General bronchitis was present. Very slight anasarca. No icterus. Temperature $101\frac{1}{2}$. Pulse 120. Respiration 44. Weight $31\frac{3}{4}$. Urine colorless and of very low sp. gr. (1002), containing slight traces of bile but no albumen, sugar or casts. Several passages daily, of light color and very odoriferous. Suspecting a tuberculous process I applied the ophthalmic test (0.5% and 1% T. P.) with negative result. Potassium iodide continued for several weeks also gave negative results. I then lost track of the patient for about two months.

Upon examination early in September I found the abdomen still markedly distended but I was able to ascertain that the liver was enlarged to about 3 fingers below the ribs and that the spleen was also enlarged. The ascites and hydrothorax persisted. Urine still negative but of normal sp. gr. Weight same. T. $120\frac{1}{2}$. P. 80. R. 56. Then a well known consultant corroborated my findings in addition to which he found a small amount of fluid in the pericardium, and he suggested that it was Pick's disease. The subsequent course of the disease and its resemblance to that of Finsen seems to justify this diagnosis.

I began to imitate Finsen's experiments in order intelligently to follow his treatment. Accuracy was entirely out of the

question since I had to depend upon the child's mother to determine the amount of fluid he daily ingested and the quantity of urine he voided. To measure the amount of NaCl. he took was impossible under the circumstances. The following calculations are of approximate value:

	c.c Urine 24 hours.	Percentage, Na Cl.	Grams Na Cl.
Ordinary diet	360	1.3	4.6
Salt-rich diet	400	1.2	4.8
Salt-poor dry diet	450	1.2	5.4
Salt-poor dry diet	500	0.95	4.75
(with diuretic treatment)			

Diuresis was small under all conditions, the normal for a child of his age being about 700 c.c. The fluid daily taken amounted to about 600 c.c. The patient would under this circumstance be water logged if it were not for the profuse sweat and loose stool. The NaCl. percentage was smallest during the salt-poor dry diet combined with diuretic treatment, but the daily quantities of NaCl. excreted were practically constant. As in Finsen's case there was probably a retention of salt in the child's system. Under the salt-poor diet the effusions disappeared, the ascites reappearing when the amount of NaCl. taken was increased. Repeatedly I induced ascites by giving the patient more salt, but the hydrothorax and the hydrocardium have not as yet recurred.

In the latter part of September a swelling occurred over the tarsal region of the right foot. This was but slightly painful and tender. Two months later it fluctuated on the inner side and pus was evacuated. A smear for tubercle bacilli was negative. The wound healed but the swelling in general remained as it was. Bier's hyperemic treatment had no effect upon it. A radiograph taken lately shows necrosis involving the internal cuneiform and scaphoid bones. This is probably a tubercular lesion in spite of the negative tuberculin test, and there is perhaps tuberculosis elsewhere in his body.

The latest examination (Jan. 7, 1909) shows the following: Weight 33 lbs., T. 98 (it had been normal since October, 1908), P. 80, R. 20. Circumference of abdomen 60 c.m., showing a decrease of 6 c.m. No anasarca, no ascites, no effusion elsewhere. The liver and spleen larger. Limbs some on account of the condition of the foot. In general the patient is more playful and his condition has apparently improved.

Although there can be no doubt as to the prognosis I am convinced that the salt-poor diet combined with tonic treatment has benefitted the patient, and will probably continue to keep him more or less comfortable for some time to come.

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¹Deutsche med. Wochenschrift, 1884.

²Rumpf (Deutsches Archiv für klin. Medizin, Bd. 55, 1885).

Wunschheim (Prager med. Wochenschrift, 1893).

Hubler (Berlin klin. Wochenschrift, 1897).

Pasquier (Archiv. gén. de méd., 1897).

Siegert (Virchows Archiv., Bd. 153, 1898).

Schmaltz and Weber (Deutsche med. Wochenschrift, 1899).

Lennander and Scheel (Nordiskt med. Arkiv., 1900).

³Zeitschrift f. klin. Medizin, Bd. 29, 1896.

⁴Die Therapie der Gegenwart, July, 1905.

Acute Anterior Poliomyelitis.—A pathological study of three cases, (Medical Record, Sept. 19, 1908), WILLIAMS B. CADWALADER arrives at the following conclusions:

(1) Acute anterior poliomyelitis is essentially an acute poliomyelitis.

(2) The process is the same during infancy and adult life.

(3) The process is most marked in the lumbar and cervical enlargements of the cord and frequently may extend upwards as far as the cerebral cortex.

(4) Interstitial changes predominate and occur together with parenchymatous changes. Parenchymatous changes never occur without interstitial changes.

(5) The localization and intensity of cellular infiltration depend upon the distribution and vascularity of the area affected.

(6) Neuronophagia is an important factor in the destruction of ganglion cells.

The Quantity and Quality of Breast Milk During the Puerperium.—DR. EFAA V. DAVIS, in the J. A. M. A. of October 10th, 1908, pleads that the care of the child in the first month of life is the duty of the obstetrician; the conclusions drawn from the study of one hundred hospital cases are:

1. The system of estimating the quantity of breast-milk by weight is a decided aid in determining a feeding schedule for the newborn.

2. Both mother and child must be considered before a thoroughly useful law can be established.

3. The early secretion from the mother's breasts is useful in sustaining the child, and babies should be encouraged to nurse from the first day of life in every case possible.

4. When the milk is abundant, a three-hour interval soon becomes the shortest interval during the day for breast feeding, but a longer interval at night can be sustained by the child with benefit.

5. Both the digestive capacity of the child and the quality of the breast-milk may enter into the results in a given case exclusive of quantity and the time interval.

A CASE OF SIGMOID SINUS THROMBOSIS COMPLICATING A SCARLATINAL MASTOIDITIS.

BY SEYMOUR OPPENHEIMER, M. D., OF NEW YORK.

J. D. W., female, aged six years, was seen by me in consultation with Dr. G. Fishlowitz on the sixth day of a scarlet fever, on account of a profuse muco-purulent discharge from the nose, and a severe throat inflammation. There was marked sub-maxillary and cervical adenitis, both nasal and faucial conditions clinically presenting all the evidences of diphtheria, but culture failed to show the Klebs-Loeffler bacillus, streptococci being reported. The ears were also examined at this time, a slight congestion of the right tympanic membrane being present; temp. 103.

Three days later spontaneous perforation of the drum membrane took place, without any definite reference being made to the ear by the child. At this time I again saw the patient and found a large perforation of the drum membrane, with profuse sero-sanguineous discharge, no mastoid tenderness, nasal and faucial condition has markedly improved, as well as the adenitis. The culture of the aural discharge showed streptococci in abundance, and a few staphylococci. The temperature varied between 101-104°, which was maintained for the ensuing six days. During this period the local otitic condition became pronouncedly worse, with all the evidences of a developing acute mastoiditis.

On the night of the 25th of February, on the 11th day of the otitis, and the 17th day of the scarlet fever, the mastoid process was opened. The operative findings showed unusually well developed interosseus cellular structures for a child of this age. The mastoid cortex was very thick, considerable free pus was present in the mastoid antrum, the tip of the mastoid process being markedly necrotic. A macroscopically normal plate of bone covered the sigmoid sinus, which was not removed, no exposure of the underlying dura occurring. The temp. following the operation dropped to 99°, and immediately rose to 103.8°. This was considered at the time a not unusual post-operative rise. After another slight remission the temperature steadily rose for the subsequent 48 hours to 105½°. The little patient was extremely fretful and peevish, and complained of occasional chilly sensations along the limbs and back. In the next 24 hours, two additional rises of temperature to 105° took place, with sharp remissions to 100°, making altogether three rises

to 105° within one day. Thorough exploration of the wound showed no local infective process. Small pink granulations were springing up, less marked over the bony sinus plate. The wound looked rather unusually dry, the dressings not being soaked as profusely as customary. During the period following the mastoid operation, there had been a progressive increase in the polynuclear count from 72% to 84%, leukocytosis also increasing. Blood culture negative. All other general conditions having been excluded, the diagnosis of an infection of the sigmoid sinus was made, being based chiefly upon the sharp, rapid temperature oscillations preceded by what is equivalent, in a child at least, to a chill, i. e. complaining of being cold.

The maintenance of the persistently high temperature after the mastoid operation led me to believe that an infective phlebitic process probably antedated the before-mentioned procedure. Under chloroform anesthesia, the bony plate over the vertical limb of the sigmoid sinus was removed, making a large exposure from a point beyond the sinus knee to a point as close to the jugular vein as possible. The exposed sinus wall was decidedly thicker than normal, and was wrinkled in folds, nor did it protrude from its lateral bony attachments as pronouncedly as does the normal vessel, when the overlying bony plate is removed. But little attempt was made at palpation, as I am of the opinion that the likelihood of the dislodging of a parietal thrombus into the circulation is quite possible, unless definite occlusion can be made of the vessel at its proximal end.

Incision of the sinus wall was followed by a very undetermined flow at first, which in a few seconds, was followed by profuse bleeding. The thrombus was not found, although the slow character of the bleeding following the incision, followed shortly by an increase in the volume of the stream, leads me to unquestionably believe that a parietal clot was present, which was washed out by the subsequent gush of blood.

Free hemorrhage being established, both from the distal and proximal ends of the sinus, the external vessel wall was incised, and the wounds packed in the usual manner. Immediately following the operation the temperature dropped to $99\frac{1}{2}^{\circ}$, and with slight variations has since remained normal, the general mental and physical condition of the child at once pronouncedly improving.

45 East 60th St.

REMARKS ON CONGENITAL SYPHILIS.

BY ARTHUR STERN, M. D.,

ELIZABETH, N. J.

The diagnosis of congenital syphilis as a rule is based on the two most frequent symptoms, the coryza syphilitica, and the syphilitic rash in its manifold appearances. A good many cases however, come under the observation of the physician with obscure symptoms, and as an early diagnosis is of the greatest importance, a careful examination of each child, where only the slightest suspicion points toward a specific inheritance, is absolutely necessary.

There are very few diseases which show such a changeable tendency, both in adults, as well as children, as syphilis does. In a baby of two or three months of age we are apt to find the most serious destructions and disturbances of the nervous, digestive and vascular system, as well as the bones; just as serious, or more so, as in the tertiary forms of syphilis in adults, and the early recognition is of the greatest value; for early treatment is the point in question.

Neglected cases of hereditary syphilis, where perhaps the liver tissue has undergone the changes of an interstitial hepatitis, or where syphilis has combined itself with general sepsis or atrophic conditions due to chronic gastroenteritis, are almost always lost. On the other hand, an early treatment offers excellent chances for a syphilitic baby, and it is remarkable to see how quickly serious symptoms ameliorate.

A typical case of hereditary syphilis is easily diagnosed, but the rarer varieties which induced me to publish the following two cases, sometimes escape our diagnostic skill.

CASE I. Michael S., two months old, well nourished child was brought to my office by his mother, who stated that the child had been very well up to the last few days, when he started to bleed from his nose. The child, although well nourished, looked anaemic and had a slight bloody discharge from the nose. The nostrils were reddened, and the nose seemed somewhat swollen. There was no rash anywhere, but a characteristic peeling on the soles of the feet, and in the palms of the hands. The abdomen was enlarged, and the liver could be mapped out as enlarged, and touched the horizontal navel line.

There was slight icteric discoloration of the sclera and of the mucous surfaces of the mouth. Immediately the child was put on calomel 0.01, three times daily, but notwithstanding this, the child developed rapidly hemorrhagic diathesis with petechiae on the arms, bleeding from the mouth, and died four days after I saw it.

CASE II. Child E., three months old, was taken sick, as the mother stated, rather suddenly. He had always been well and had been breast-fed. Twenty-four hours before I saw him the mother noticed that whenever she touched the right arm, especially the elbow and the wrist, he cried. When I saw the child, he had a temperature of 101.5, the tongue was coated, there was no rash to be seen anywhere, no swelling of the glands, throat and lungs perfectly free and no history of bowel disturbance. The left arm and both legs were freely movable, but as soon as the right wrist and right elbow were touched, the child started to cry, and the arm was lying on the pillows as if paralyzed. The peripheral epiphysis of humerus and of radius and ulna, were very much swollen.

The child received calomel 0.01, three times daily, and in two weeks' time, the mobility of the arm became normal and the child has been normal since.

The interesting point in the first case was the combination of syphilis with hemorrhagic diathesis. Whether this latter condition was a pure hemorrhagic condition, or whether it was a septic combination, is of course hard to decide.

Behrend in 1884 speaks of a hemorrhagic form of syphilis, but Henoch doubts if there is such a special form, or if it is nothing more than a septic addition to the syphilitic condition, a so-called mixed infection. The prognosis in these cases is extremely bad.

The second case shows some interesting points in the monolateral swelling of the epiphysis of the long bones, which is characteristic of syphilis. Barlow's disease could be well excluded, as the child was breast-fed and in rickets the swelling is bilateral. Henoch states, that he has never seen a one-sided swelling of the epiphysis in rachitis, and if a swelling takes place on one side in children in the first months of life, it almost always means syphilis. The pronounced difficulty on active motion, and the total passive immobility are also syphilitic and the rapid action of mercury in these cases clears up the diagnosis quickly.

ADDRESS.*

BY FREDERICK C. ZAPFFE, M. D., CHICAGO,

SECRETARY AMERICAN MEDICAL COLLEGE ASSOCIATION.

Mr. Chairman, Ladies and Gentlemen:—I simply give you the observations made while traveling across the country from east to west. In order that you may understand how these observations were made, I shall outline a little of the history of the inspection work. It began in 1903, and we have in membership about sixty colleges. We have dropped from membership about sixteen colleges, and in five years we have probably inspected the bulk of medical colleges in the country. Subtracting therefore the number of colleges of sectarian schools, there was quite a number of schools which I visited myself. These visitations or inspections included everything. This year we adopted what should constitute the equipment of a medical school. Three years ago, we adopted a curriculum as a standard in which we had arranged for the didactic and clinical teaching of Pediatrics. It has always been my aim to meet the teachers of the college. The leader of the faculty is probably a good index to go by. You can tell whether he is doing his work or whether he is simply upheld by the trustees. Our work covered every branch in the college, so that our inspection included a review of the records of the institutions. We would take for example, the clinical lectures, and note the amount of material for a week, etc. The same measures were taken in the operating room, counting the number of patients for a week, so as to get an idea what the colleges were doing. As I recall my travels, on few occasions have I met the Professor of Pediatrics. Whether there was none in that particular institution or whether he was an insignificant member of the faculty was the question that would arise. In the majority of cases he was not on the faculty and was a part of the chair of medicine, or on the other hand he may have been an Associate Professor. I am sure that the honor is attractive enough for a man to strive to obtain it. I found that a teacher of Pediatrics traveled under the head of a teacher of medicine in an institution which I have

*Read before the second annual meeting of The American Association of Teachers of Diseases of Children, Chicago, Ill., June 1st, 1908.

in mind. Why he should instruct and not receive the title I do not know. There are reasons that would account for the lack of support the subject of Pediatrics receives. For example, in the dispensary service, the patients are taken care of by mostly young and inexperienced men who endeavor to swell the clinical accounts of the cases treated, and incidentally adult patients are brought in; and likewise, many children are treated in the medical dispensaries. As I recollect the situation now, I rarely ever have seen a Pediatric clinic. The time for teaching is so short that medicine and surgery take up all the spare moments, and Pediatric clinics are shunned because the man on the faculty is not willing to hold them. In a Pediatric clinic you can not as a rule employ many instruments and it looks like a waste of time. Now, we have tried to arouse activity along Pediatric lines by allotting to the subject forty hours of didactic work and sixty hours of clinical work. Forty hours of didactic work may not be enough, and sixty hours of clinical work may be likewise insufficient. We demanded thirty weeks of teaching in each college term. In schools where the subject was well represented, I found that the teaching was not at all complete. The teaching in large part was confined to the diseases of the child, and my attention was called to it by a book publisher who was looking for some one to give him a book on diseases of children and not on infants. The subjects particularly interesting to Pediatricists, feeding etc., did not receive the proper attention and very little of it was taught. Renew your acquaintance among pediatric men and see how many of them are teaching Pediatrics in full. I think that if Dr. Kelley had extended his investigations he would find that the bulk of Pediatrics comes from the chair of Practice. Measles, scarlet fever, mumps, etc., seemed to be the leading subjects taught by the majority of teachers. Nothing was said about prophylaxis, feeding, etc. A few years ago, I was quite surprised when a teacher of Pathology, who later on branched into Surgery, a man, incidentally interested in X-ray work, began to study the anatomy of the child by means of the X-ray. This was five years ago. He showed me a number of plates and pointed out the child's development year by year, and it made a most interesting study. I believe he taught it to the students in a series of supplementary lectures. I have never heard of anatomy and physiology of the child being taught in any school except this one.

The surgical side of Pediatrics I never saw demonstrated except in the light of Orthopedics. The children are treated like all other classes of patients, although there is a good opportunity for the development of surgical Pediatrics. I have seen colleges in all parts of the country, good, excellent and bad

ones, and the defects just mentioned were noticeable. In the very best colleges, the chair of Pediatrics was not a major subject. Not many years ago, colleges permitted students to graduate who had failed to secure a passing mark in the subject of Pediatrics. I am sure that an Association of this kind will develop and will do far more for the welfare of Pediatrics than the American Medical College Association has been able to accomplish.

DISCUSSION.

Dr. A. C. Cotton of Chicago. We are all edified by the statements of Drs. Zapffe and Bevan who are so well qualified to speak on the subject of Pediatrics in re curriculum work. Both of these gentlemen, so well informed, prove that the committee should have a Pediatricist who could see with Pediatric eyes. When we hear that ten percent would be a fair apportionment of the time for Pediatric study, and sixteen percent for Obstetrics and Gynecology, I must say that these gentlemen have forgotten that they were once children. What percentage of our patients will come under the care of the Gynecologist and the Obstetrician? What proportion of humanity comes under the care of Pediatrics? Note, if you please the large number of deaths due to the lack of the Pediatricists' services. They should have some one on the committee to represent Pediatrics, and it should be the pleasure of the alumni of the various colleges to appoint such men. In this respect we are sorely lacking and I must say that our department of the profession is treated in a "step-motherly" sort of way.

The Gospel of Top Milk.—JACOBI, in the J. A. M. A. of Oct. 10, 1908, says this "gospel is heresy." He cites the case of a fat, flabby, 21 months old baby, weighing 29 pounds, nursed by mother for three months, then bottle fed; sleeps fairly; intelligent; walks with difficulty; some rickety curvature of lower extremities; swelled epiphyses; enlarged thymus; constipated, feces rather hard, round, shining, light-colored, no mucus or blood, sometimes malodorous; etiology, over feeding with milk fat; treatment, a large daily enema 7:1000 salt water; food, equal parts of a cereal decoction and scalded milk. This paper deserves full reproduction as it gives a large amount of information on the chemistry of enteris contents and freely admits the limitations of our knowledge. This venerable and ever active teacher to the profession at large says: "Feeding cannot be regulated by mathematics as well as by brains, and by the wants of the individual babe."

NEW YORK ACADEMY OF MEDICINE.

Section on Pediatrics.

STATED MEETING, HELD DECEMBER 10, 1908.

DR. GODFREY R. PISEK IN THE CHAIR.

WEBBED HANDS AND FEET.—Dr. Henry W. Frauenthal presented a child with congenital webbed hands and feet. All the digits of the hands including the thumb, were absolutely webbed together. There was also an absence of the soft palate. The child was five months old and nursed well. The same condition existed in the feet. So little history was given regarding the child that no discussion followed the presentation of the case.

X-RAY PICTURES OF A CASE OF INFANTILE SCURVY.—Dr. E. A. Riesefeld made this presentation. He reported the case of a baby, ten months old, whose history before the date of examination was negative, and whose family history also was negative. The baby was born at full term and the labor was normal. The child was very restless for six weeks previous to its presentation at the hospital, crying almost continually, and especially when the lower extremities were handled. The child was breast-fed for three weeks and was then placed upon a mixture of two ounces of milk and five ounces of water; this was given every two or three hours. During the past three months Mellin's food alone was given. The physical examination showed a child in fairly good general condition, with excessively tender and relaxed limbs; the examination of the oral cavity was negative, the liver and spleen were both palpable. The baby was put upon a raw milk mixture with the addition of fruit juice; this was followed by a rapid improvement. The tenderness of the limbs had almost entirely disappeared after twenty days' treatment. The weight rapidly increased.

He said that in those cases of Barlow's disease wherein many of the cardinal symptoms were absent or obscure, the X-ray proved a valuable aid in the diagnosis, enabling one to trace those changes in the bone resulting from and following the correct treatment of the condition. The X-ray plate revealed two important conditions, subperiosteal hemorrhage, and changes at the epiphyseal line.

Dr. Thomas S. Southworth said that in cases of such pain occurring in children who had a history of being fed with this particular kind of food and water, the diagnosis of scurvy was easily made. He had had three such cases during the past year.

Dr. Godfrey R. Pisek said that although the X-ray was very valuable to the general practitioner, frequently in these cases of infantile scurvy the diagnosis was not made and unfortunately these children were treated for other conditions while the true nature of the disease was not thought of. When used the X-ray was only confirmatory of the diagnosis already made.

HEMORRHAGE IN THE NEW-BORN, APPARENTLY DUE TO DELAYED COAGULABILITY OF THE BLOOD TRANSFUSION.—Dr. Herman Schwarz and Dr. Reuben Ottenberg reported an unusual case in which blood transfusion was performed in a new-born child. The child was born at full term and the labor was normal. The baby was apparently well until the seventh day when he began to vomit after feeding. On the eighth day the vomitus contained blood, and blood was noticed in the stools. On the tenth and eleventh days bleeding occurred from the mouth. There was no skin eruption, and the liver and spleen were palpable. The lymphatic glands were not enlarged. After the birth of the baby, the mother developed an abscess of the breast which was almost healed. Ten c.c of horse's serum was injected subcutaneously, but this failed to have any effect upon the bleeding. It was learned that the baby's blood coagulated in forty-eight minutes, and the father's blood in from four to five minutes. If a portion of the father's blood was added to a portion of the baby's blood, the coagulation time was reduced to the normal. The addition of the calcium salts had no effect upon the coagulation, and so transfusion was decided upon. At the time operation was decided upon the hemoglobin was 40 per cent. and when the child was placed on the operating table, it was reduced to 30 per cent. The father furnished the blood for the transfusion. At operation the child appeared to be dead. During the transfusion the hemoglobin increased from 30 to 90 per cent. and all in the course of twelve minutes. When the latter percentage was reached the transfusion was stopped. So soon as the child got the father's blood, the bleeding immediately ceased, and the coagulation time was practically normal. For five days after the operation the bleeding ceased; then bleeding began again. The child died on the twenty-first day as the result of the continued loss of blood.

Dr. F. L. Wachenheim asked Dr. Schwarz when this method of treating hemorrhages was first suggested.

Dr. Schwarz replied, in 1905.

Dr. Wachenheim said that he antedated that time by two years,* because he suggested this same treatment in 1903. In these hemorrhages it was probably the complement which must be supplied; this could be done by the use of any foreign serum which he had advocated in 1903.

INFANT MORTALITY. COMPARISON OF THE PAST AND PRESENT.—Dr. William L. Stowell read this paper in which he said that statistics had only been collected in civilized countries during the past generation and hence it was only recently that comparison of the past and present was possible. He had made the present study for the purpose of finding out wherein gain had been made and wherein loss had taken place so that it would be possible to lay plans for future work. He thought that infant mortality could be considered as beginning before birth, and that Guillemot and Devillieres claimed that from 20 to 25 per cent. of pregnancies failed to mature. In 1851 to 1860 the birthrate in England was 43.1 per 1000 population while in the United States it was 33.6 per 1000 population; now it was 28.1 per cent. in England and Wales and 27.2 in the United States. The decline was relatively the same in other civilized countries except in France where it had fallen to 22.2 per thousand. Illegitimacy was also a factor in causing infant mortality as illegitimate children showed a very high death rate, due to neglect and to the fact that this class of children were so often sent to institutions. The number of illegitimate births in England had fallen from $6\frac{1}{2}$ per thousand in 1860 to 3 at present. Deformities such as spina bifida, hydrocephalus, etc., lessened the likelihood of children living beyond infancy. Unfavorable constitutional tendencies that lowered the powers of resistance, habits and morals of the parents that were visited on the children also increased the infant mortality. In studying infectious diseases it was found that the number attacked increased in proportion to their exposure outside the home. Pneumonia carried off a large number of infants; in 1906 more than 12,000 infants died from this disease in the registration area. It could be questioned whether physicians were treating pulmonary and diarrhoeal diseases as wisely and successfully as they were treating the infectious fevers. The mortality rates in different countries and in different years were so divergent that they could only be explained by studying the character of the homes, methods of caring for children and the habits and lives of the mothers. In the year 1860 in this country there were 207 infant deaths out of every one 1,000 deaths, in 1900 only 191, while in 1906 there were 202. This seemed to show very little gain since 1860. He had presented the records of the Infants' Hospital as a basis for his opinions as regards the effect of certain methods of caring for children upon the mortality. This institution, which was founded in 1866 showed during the first five years of its existence a mortality of 55 per cent. for all children admitted; the mortality for the mothers' children was 16 per cent. The next five years showed orphans and foundlings with a mortality of

44.6 per cent. while the mortality of mothers' children was 12.4. It seemed to be the universal rule that mothers' children had about four times the chance of life that the orphan and foundling had. The mortality among babies farmed out was 14 per cent. in 1875, 21 per cent. in 1885 and 48 per cent. in 1888. The rates for farmed out infants fluctuated markedly but in general they were lower than for infants kept in the institution. The average mortality of the foundling from 1897 to 1901 was 47 per cent. a gain of eight points as compared with the five years from 1868 to 1872. Children had been fed with various proprietary foods at different times, but in the main milk was used. After the introduction of new methods in the hospital in 1891, competent nursing, sterilized milk, an increase in the number of wet nurses, renovation of the buildings, sending of contagious diseases away from the Island and finally, in 1898 the introduction of the percentage method of feeding, the mortality rate for the year 1898 was 19.8 per cent. Since that time it had never risen higher than 27 per cent. Overcrowding had a direct effect upon mortality and this increase was greater among young children. Statistics for city and country in New York state showed that in 1901 there were 70.9 deaths per thousand population in the cities to 39.8 in the country. There had been a steady advance in both city and country during the succeeding years. Density of population, alone, was not necessarily a reliable standard as in the Ansonia, New York's largest apartment hotel, where there were 2,000 persons living in 2,500 rooms, making a density of 1,262 per acre, where everything was modern and hygienic there had not been an infant death in the seven years since the building was completed, neither had any employe, of which there were 400, given up work because of tuberculosis. This showed that it was possible to have a dense population without a high death rate. In the tenement districts the smaller the number of rooms the higher the death rate. Dr. Stowell quoted from a paper written by Dr. Harris in the beginning of the eighteenth century in which he scored the women of that day for their failure to nurse their children and their preference for cards, theatres and social diversions: The women of today were but a replica of their forebears. When the factories were closed in the South during the civil war there was a great drop in the infant mortality; when the war was over and the factories opened there was a corresponding rise in the infant mortality. In general terms it might be said that the mortality among mothers' children was less than 10 per cent. while among wet nursed children it was a little higher; with orphans brought up on the bottle there were twice as many fatalities as there were among the wet nursed. It had been stated that child insurance had been a factor in infant mortality but careful investigation had excluded

this factor. The mortality among insured children was less than the general mortality. Infanticide had been rapidly decreasing for the past ten years. The infant mortality for the registration area for 1906 was 20 per cent. of the total mortality instead of $12\frac{1}{2}$ per cent. which was thought to be normal. Since 1900 typhoid fever had declined and also malarial fever and influenza. Measles and scarlet fever had remained the same, whooping cough and diphtheria had decreased, pulmonary tuberculosis had fallen off somewhat but not as rapidly as with the adult population, respiratory diseases had increased and also venereal diseases. Diseases of the kidneys and the circulatory system remained practically the same. The digestive diseases which showed no falling off during this period were due to infection by means of the food supply. He spoke of the effects of warm weather upon the food supply and of the dangers of infection through the agency of the fly. Dr. Stowell outlined the work done in Berlin, Paris and New York for the purpose of bettering the surroundings of infancy. He said that few young people and even those with families knew how to care for their offspring and that social settlements, church clubs and the general practitioner should endeavor to educate the mothers. Women about to become mothers should not be permitted to work in factories until they had regained perfect health. If, as Graham said 50 per cent. of infant deaths were preventable the physicians of the United States should be indicted for homicide in 30,000 instances annually.

Mr. W. C. Phillipps called attention to the worthlessness of statistics which were brought forth regarding infant mortality. Even President Roosevelt made mistakes in his statistics. Mr. Roosevelt had recently stated that in Panama the people were so well that it justified the belief that, instead of a place of pest and rot, it was the most healthy on the American continent. He did not state that the men there were in the prime of health and all over twenty years of age. In getting the statistics regarding infant mortality it should be asked what condition the babies were in when brought to Randall's Island and how long they stayed there. These were, in his opinion, very important questions to be asked. Women had asked him why it was necessary for them to nurse their babies when they could obtain milk already prepared and in bottles. The milk stations gave out many hundreds of bottles of milk daily and this proved one of two things, either the mothers were unable to nurse their babies, or else they were prevented from doing so because of economic reasons. Mr. Phillipps said that the high infant mortality was due to four or five principal causes, (1) hereditary weakness, (2) poverty, (3) industrial conditions, (4) impure milk and (5) ignorance. All of these causes could be remedied.

Dr. Charles Herrman wondered why Mr. Phillipps had placed ignorance last among the factors causing the high death rate in infants, for he believed that it should be moved up a bit. Ignorance was the one factor to deal with immediately. There was no doubt but that a large part of infant mortality was due to improperly prepared food and improper hygiene. Much good had been done by the dispensaries, milk depots, lectures given by those connected with the Department of Health, etc. by properly instructing the mothers regarding the care of the baby, but these mothers represented only a small percentage and probably were not those who needed the instruction most. Such instruction should be given as soon as the baby was born. When the birth certificate was received by the Health Department, a physician or nurse should be sent to the home to instruct the mothers on the feeding and care of their babies. If it was not possible to visit all, those reported by midwives or persons not physicians, should be selected. In order to carry out the plan properly, the mothers should be visited immediately after the birth of the child.

Dr. Thomas S. Southworth said that Randall's Island hospital for infants had now emerged from the conditions which once existed there. Since the Infants' Hospital had closed in 1904 there were no infants under two years of age and no mortality on the island. It had been repeatedly claimed of late, both at home and abroad, that the mortality in the Infants' Hospital was reduced from 49 per cent. to 19 per cent. by pasteurization of the milk. Sterilization of the milk had been practiced for many years before Dr. Neff established in 1896 a milk laboratory for modifying and pasteurizing the infant's milk. Two years later, in April, 1898, private philanthropy installed a very complete apparatus for modifying milk. From the increased facilities for modifying milk they hoped for better results in feeding. Pasteurization and sterilization having been previously tested without noticeable results they had, in 1898, secured sixteen to twenty quarts daily of percentage cream from the Walker-Gordon Co., or enough to make all the feedings required in the hospital. This milk, then as now, required no pasteurization to kill the tubercle bacilli, as the milk was obtained from the tuberculin tested cattle. The reports of the visiting committee of the State Charities Association in 1907 had stated that the "babies in the Infants' Hospital were suffering and dying by reason of carelessness, ignorance and inefficiency on the part of those in charge." "Nursing had shown lack of strong steady supervision." There was then overcrowding, bad nursing, indifferent feeding and, as a result, always a mortality. In 1898 a competent supervising nurse was appointed. New plumbing, new floors and new ceilings were put in throughout

the building. The number of wet nurses was quadrupled. Children with contagious diseases were transferred to other institutions. More children were boarded out. Overcrowding of the wards ceased. The report of the same committee for 1898 said, "the sickening odor formerly characteristic of the wards has disappeared." "Making every deduction for altered circumstances there remained a notable decrease in mortality which could only be accounted for by better food, better nursing, better care, and better administration in the Infants' Hospital." No mention was here made of pasteurization as the sole cause of the reduction of the mortality, and now that Dr. Stowell had made public the facts, this claim should cease.

ELECTION OF OFFICERS.—Chairman, Dr. Eli Long; Secretary, Dr. William Shannon.

Milk and Infections.—(J. A. M. A., Oct. 31, 1908).—J. W. TRASK remarks that when it is considered that available evidence seems to show that between 2 and 4 per cent. of typhoid convalescents become chronic bacilli carriers, the probability that some of them are employed at dairies in milking cows and handling milk is very great. The dangers of infected bottles in typhoid epidemics is also emphasized. Diphtheria outbreaks and their relations to milk distribution have been studied, and he points out the methods of observation by which outbreaks of these three diseases have been traced to special milk routes and stamped out before they had reached very formidable dimensions. The question of human tuberculosis from cattle is not altogether settled, but the facts seem to show that man is capable of infection with bovine bacilli and that a certain proportion of cases in the human species are of bovine origin. The prevalence of tuberculosis among cattle is estimated in many parts of the country as ranging from 15 to 40 per cent., and the possibility of milk infection, even though the udder is not diseased, is always to be considered. We may expect to find tubercle bacilli in market milk and milk products, and this has been frequently shown. Other diseases in the epidemiology of which milk plays an important part are dysentery, epidemic diarrhea, cholera, and milk sickness.—Medical Record.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section on Pediatrics.

MEETING HELD DEC. 18, 1908.

DR. JOHN W. PARRISH, CHAIRMAN.

PAPER OF THE EVENING: THE CARE OF THE RHEUMATIC CHILD, by Le Grand Kerr, M. D.—The prevention of rheumatic attacks in a child who is subject to them, or who is predisposed to rheumatism, is of great importance. The serious complications of rheumatism are more surely prevented by care before an attack begins than by treatment during an attack.

The question before the medical profession to-day is whether rheumatism is an infection or a diathesis. Investigators have isolated diplococci from the heart, pericardium, joints and other situations in rheumatic cases. These diplococci are not distinctive however, and their role in causing rheumatism is not settled as yet even in the minds of bacteriologists. There is a tendency to belittle the influence of the rheumatic diathesis since the laboratories have been telling us so much of the cause of disease. Dr. Kerr believes that there is a micro-organism which causes rheumatism, and that there is also a rheumatic tendency or diathesis, which furnishes a favorable soil for the organism to grow in. As the organism is always with us, it seems that the determining factor in causing rheumatism in any individual is his susceptibility to the infection.

In children, the most important object in the treatment of rheumatism is the prevention of cardio-vascular changes. There is a distinct hereditary predisposition to rheumatism in a child if one of his parents is rheumatic; he is nearly certain to develop rheumatism if both parents are rheumatic.

The natural defenses of the body against infection by the rheumatic poison are: (1) a healthy and intact condition of the epithelial surfaces (skin and mucous membranes), (2) a similarly healthy condition of the endothelium of the heart and great vessels, (3) an effective elimination of the waste products of the body by the kidneys, bowels and skin, (4) a healthy set of organs in the body, including the tonsils, and (5) a general resistance of the system which, for want of a better name, may be called recuperative power.

Dr. Kerr has reviewed the cases of rheumatism in children which he has seen, paying special attention to the *first* symptom which has appeared in each case. Dr. Kerr does not claim that his figures represent the general experience of all observers, but they furnish food for thought.

In 39% of Dr. Kerr's cases, the earliest manifestation of rheumatism was tonsillitis. This was usually of the follicular variety, though the other forms also occurred including the suppurative form. Dr. Kerr believes that fully one-third of all cases of tonsillitis are rheumatic. This should impress upon us the importance of removing enlarged tonsils and adenoids in children, as well as the necessity of treating a child for rheumatism if he has a rheumatic family history and has even one attack of tonsillitis. Care may prevent an acute attack of rheumatism, with its resultant cardiac complications.

In 11% of Dr. Kerr's cases the initial symptom was urgent dyspnoea with pain in the chest, without any valvular lesion. These cases usually showed anemic heart murmurs. Here again, the warning should be heeded, and rheumatism prevented if possible.

Chorea was the first symptom in 9% of cases, and in 4% of cases the mitral symptom was myalgia or a "growing pain." Not all so-called growing pains are of rheumatic origin, but muscular pains which persist through the day and night, being as severe at one time of day as at another, should be considered rheumatic.

Joint involvement was the first symptom in 31% of Dr. Kerr's cases.

Torticollis has never been an *initial* symptom in any of Dr. Kerr's cases, though it has frequently been present later in the disease. The same statement is true of pleurisy. As to erythemas, there is great doubt of their rheumatic origin.

Any of these manifestations plus a rheumatic family history should cause the physician to suspect rheumatism, and to guard against it. The wisest way to treat rheumatism is while it is abarticular.

The treatment of rheumatism during an attack consists largely of absolute mental and physical rest. The child should be kept in bed, and he should see no visitors and have no excitement. He should take no solid food for a few days, and no meat or meat extracts for several days. The sugar in the diet should be very limited. His milk should be prepared by diluting the upper pint of a bottle of milk with an equal quantity of water. Ripe fruit and fruit juices are allowed. The skin should be kept active by hot blanket-packs and hot fomentations. Hot enemata given every twelve hours for two or three days are very useful in stimulating the action of the bowels and kidneys. Hot

sponge baths followed by cool sponges are also helpful; the affected joints are omitted from the sponging process.

Hyperpyrexia is treated by tepid sponging without drying. Temperatures less than 102° F. require no treatment.

In children, the joints are seldom very painful, and they do not need analgesics. The affected joints should be immobilized until the temperature subsides, when gentle flexion should be begun to avoid subsequent stiffness.

If tachycardia develops, cold compresses or an icebag should be placed over the precordium.

Tonics are needed during convalescence, and they should be begun early. When the temperature reaches normal, cereals are allowed, and peas and beans. The next day, baked potato is given. In a few days, if everything does well, meat can be allowed once every day. Sugar should be strictly limited for a long time, as it seems to be especially harmful.

As to medication, sodium salicylate or some derivative of it is required during the acute stage. Children do particularly well on salicin, one grain for each year of the child's age, every three hours. Aspirin is less rapid in its action, but its effects are more prolonged; it is useful after the acute symptoms subside. Sodium bicarbonate should also be given and kept up for from four to six weeks.

If every attack of rheumatism in a child is carefully and thoroughly treated, and if every rheumatic manifestation is recognized as such and so treated, we will prevent many cases of cardiac involvement.

Dr. Bartley, in discussing Dr. Kerr's paper said that he believed thoroughly in the theory of predisposition to rheumatism. He thought that the reason some persons never have an attack while others have repeated attacks, clearly was due to a difference in susceptibility, inasmuch as all are equally exposed to the disease. He thought that living in damp places often brought on an attack, and catching cold is a common way for rheumatism to start. He thought a rheumatic person usually was a victim of sub-oxidation of his tissues, or, to use the common term, the uric acid diathesis. He thought Dr. Kerr was right in reducing the nitrogenous elements in the diet, but he did not see why he diluted the milk, as its nitrogen does not give rise to xanthin bodies. Sugar, by causing intestinal fermentation disturbs the internal secretions and thus breaks down some of the defenses of the body against the rheumatic infection. Rheumatism is rare in the first year of life; this is an important point of differentiation from scorbutus. Rheumatism is also rare in the second year, usually appearing in the fourth or fifth year.

Dr. Ager said that he did not believe much in the diathetic theory. He had seen so many series of cases occurring at one

time in persons living together, and so many cases in children who had no rheumatic family history, that he considered the disease an infection. He thought we should confine the name rheumatism to cases of arthritis which were benefited by salicylates. Many cases of influenza in children are called rheumatism. He asked Dr. Kerr what he meant by the vascular complications of rheumatism.

Dr. Beck said that he had seen very few cases of rheumatism at the seashore, and he thought that sea air must act to prevent attacks.

Dr. Paul Parrish said that he believed rheumatism was an infection, and he looked to the tonsils for the point of entrance of the germ. He had seen several cases of valvular disease complicate what seemed to be an ordinary tonsillitis. He thought primary pleurisy was either tubercular or rheumatic. He agreed that rest and salicylates were the best treatment for rheumatism.

Dr. Snyder said that rheumatic iritis was uncommon in children.

Dr. John W. Parrish said that he believed that rheumatism was an infection, occurring in those who were predisposed to it.

Dr. Kerr, in closing, said that he did not believe rheumatism was the only cause of endocarditis in children. In reply to a question by Dr. Ager, he said that there were degenerative changes in the great vessels in rheumatism, analogous to the changes in the heart valves.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section on Pediatrics.

MEETING HELD JAN. 15, 1909.

DR. JOHN W. PARRISH, CHAIRMAN.

I. CLINICAL NOTES ON HEREDITARY SYPHILIS, by Benjamin Edson, M. D. See page 78.

II. SYMPTOMS AND DIAGNOSIS OF INHERITED SYPHILIS, by Archibald D. Smith, M. D. See page 67.

Discussion of both papers. Dr. Smith, referring to Dr. Edson's paper, said that when a syphilitic child is born of a healthy mother, the mother's blood has been immunized through the placental circulation, so that she cannot acquire syphilis. Such a woman can marry a healthy man later, and she will bear him healthy children. This has been demonstrated many times.

Energetic antisyphilitic treatment of a healthy woman who has borne a syphilitic child, may cause her to bear a normal child, especially if the treatment is kept up all through pregnancy.

Dr. Hutchinson said that Dr. Edson's case of the woman who aborted while under treatment, does not show that it is useless to treat the mother for syphilis. Neither the abortion nor the monster may have been due to syphilis.

Dr. Spingarn said that he had often seen children who seemed to be suffering from marasmus. By treating them with minute doses of calomel he had markedly improved many of them. He wondered if some of these cases were not suffering from a syphilitic taint. Scurvy and syphilitic bone disease in infants are often hard to differentiate in the absence of a reliable history; the results of treatment alone will make the diagnosis clear.

Dr. Kinne said that he thought some persons showed an extraordinary resistance to venereal infection. This may explain cases in which a woman does not become infected, although her husband and her offspring show every evidence of syphilis. Dr. Kinne spoke of cases of hemophilia in the new-born, which he ascribed to syphilis.

Dr. Beck said that he had recently attended a woman in confinement, who was clearly syphilitic. The child was illegitimate, and appeared perfectly healthy. The father is also free from any sign of syphilis. Will this baby surely develop the disease?

Dr. Parrish spoke of the difficulty of making a diagnosis in certain forms of ulcers, as to whether they are tubercular or syphilitic. The Calmette eye test with tuberculin has been shown to be nearly worthless in making a diagnosis in young infants. Dr. Parrish had seen erythematous eruptions as the first symptom in many cases.

Dr. Edson said that he had often failed to feel the epitrochlear glands in syphilis, and that he had often found them enlarged in other cases. He thought their importance was overestimated.

Dr. Parrish had had the same experience.

Dr. Smith, in closing, said that he had seen cases of marasmus such as Dr. Spingarn described, due to syphilis. He said that there were other causes of hemorrhages in the new-born besides syphilis. Referring to Dr. Beck's case, he said that if the mother is syphilitic, the *child* is *always* syphilitic. As to the epitrochlear glands, if they are enlarged without any infection of the hand or forearm, syphilis is present.

THE CHICAGO PEDIATRIC SOCIETY.

STATED MEETING DEC. 21, 1908.

DR. L. A. ABT, PRESIDENT, IN THE CHAIR.

SYMPOSIUM ON THE BLOOD.

Dr. Churchill presented the subject of the Morphology of the Blood in Infancy and Childhood under two heads: (a) Normal physiologic blood and (b) abnormal or pathologic blood.

(a) Normal blood: The blood of the fetus or infant is in an undeveloped condition like the other tissues of the body; it is not matured until the child is five or six years old and is characterized chiefly by a relatively large proportion of lymphocytes as compared with those found in the adult blood. On this account the age and development of the child must be taken into consideration in drawing inferences from blood examinations.

(b) Pathologic blood: The most marked characteristic of pathologic blood in early life is the tendency to revert to the fetal type, due, no doubt, to the undeveloped state of the blood manufacturing organs. This is merely a phase of the general unstable condition of the child organism. As a result of this instability, the blood-making organs are "thrown off their balance," perform their functions imperfectly and so manufacture abnormal blood, which is likely to bear fetal characteristics.

Among the many causes in the production of this abnormal blood picture disorders of nutrition are the most frequent. The frequency of these disorders in infancy explains the variety and frequency of the abnormal blood-picture met with at this period. The result is an anemia, often profound and always secondary to some underlying cause which may or may not be apparent; hence these anemias should not be regarded as primary, but as secondary and should not be accorded special names. The term splenic anemia should not be applied to them, for, while in the anemias of infancy the spleen is often enlarged, this is not always true and the two conditions, anemia and enlarged spleen, are in no way dependent upon each other, but are both the result of some common underlying cause. This cause should be diligently sought for and in the majority of cases will be found in the intestines.

Dr. Julius Hess described the blood findings in seventeen cases of pneumonia in children between the ages of five months and twelve years.

Coagulation was exceedingly rapid and the amount of fibrin increased, the network being dense and coarse and forming with great rapidity in cases of severe infections in children of good resisting powers and especially when there was considerable lung involvement. There was a gradual decrease of these findings to normal after the crises and during absorption of the exudate. Specific gravity was usually high during the febrile period and during spells of cyanosis. In the early stages the hemoglobin and erythrocytes showed only minor changes in children previously healthy, unless there were changes in the peripheral circulation or cyanosis when the red blood cells were increased. Following the critical period there was a moderate lowering of the red blood count.

In the broncho-pneumonias the findings gave greater variation. One case associated with purpura showed a drop in three days from 4,372,000 to 2,400,000.

As regards the leucocytes, generally speaking, a high count indicated a severe infection in an individual of strong powers; a moderate increase indicated either a slight infection with good resistance or a severe type with an inadequate reaction. A very low count suggested either a very slight infection or an overpowering influence. The relationship between the leucocyte count and the degree of fever has probably been overestimated. In the writer's experience there was not in the pseudo-crises a fall of the leucocytes corresponding with the temperature, while following the true crisis there was a corresponding drop in the count evidenced in many cases even shortly before the crisis. In a drop by lysis the fall in the leucocyte count was usually more gradual.

A study of the differential counts in a number of cases gave an interesting series of findings, namely: A rapid fall in polynuclear neutrophils while an early rise in the large mononuclears (mother cells) following the crisis and an early decrease with the increase in the small mononuclears (daughter cells) which approached or might surpass the number of polynuclears. At this time there was also a rise in the eosinophiles from 0 or a very low count to from 1 to 8%.

Dr. Mark Jamopolis describing the blood picture in Typhoid Fever in Children said typhoid fever presents blood findings so characteristic that a positive blood picture is pathognomonic of the disease. That the red blood corpuscles decrease in number during the disease has been shown by many observers. That the hemoglobin percentage declines gradually until the end of the defervescence, the reduction being parallel with that of the

red cells but relatively much lower, has been shown by Laache and Churchill.

The leucopenia of uncomplicated typhoid, in contrast to the leucocytosis of most other acute infections is recognized as a diagnostic factor by all medical men. Twenty cases collected from the Children's Department of the Michael Reese Hospital during the past year show an average of 7,415 within the first ten days. In only two cases was the count above 9,000; in one, with a count of 11,200 there was a complicating otitis, in the other, with a count of 11,600 a pneumonia and pleurisy.

Although differing in some details, the various observations concerning the differential leucocyte count in typhoid fever have coincided.

From a study of many reports the following conclusions may be drawn with safety:

1. The neutrophiles are decreased as the disease progresses.
2. The mononuclears, as a whole, are proportionately increased.
3. The eosinophiles are decidedly decreased during the febrile period and reappear in increased proportion during the convalescence.

The leucocytes are affected by complication. Thayer from a study of several complicated cases of typhoid drew the following conclusions briefly stated:

1. In intestinal hemorrhage a leucocytosis, as a rule, occurs immediately, and reaches its maximum within twenty-four hours, the count being normal within a week.
2. Perforation is followed within a few hours by leucocytosis of varying degrees. The lower the count, the poorer the prognosis. A local peritonitis around deep ulcers may produce a pre-perforated leucocytosis.
3. Inflammatory complications usually produce a leucocytosis. The differential picture, however, shows a tendency toward that of typhoid, rather than of the complication. One case in the Children's Department of Michael Reese Hospital, complicated with a severe bronchitis, showed a leucocytosis of 11,600.

Numerous investigators have reported positive Widal reactions in from 90 to 98 per cent of cases. Morse cites numerous authorities upon the conclusion that the reaction occurs under the same conditions and limitations in children as in adults, but appears earlier, is feebler and persists for a shorter time. In nurslings it is rare and unreliable, as a woman may transmit the agglutinating power, through the milk for years after the disease.

Coleman and Buxton quote the blood culture findings of thirty-two investigators, the total representing 1,602, showing

positive results in 75 per cent. In their own cases, the highest percentage was found in the first week, averaging 89 per cent., decreasing with the progress of the disease to 26 per cent. in the fourth week. Of thirty-three relapses, however, the bacilli were found in 90 per cent. They conclude that the bacilli are present in the blood in every case of typhoid.

Dr. May Michael read a paper on the blood findings in tuberculosis, syphilis, rickets, marasmus and chronic gastroenteritis. She said that as morbid condition in children produce more rapid and severer blood changes than in adults, so it is not surprising to find early in all forms of tuberculosis more or less severe anemia. The number of leucocytes varies in the different forms. In pulmonary tuberculosis these are sometimes increased in number and again reduced. The leucocytosis, if present is almost invariably due to an increase in the polymorphonuclear cells. Tubercular adenitis is usually accompanied by a leucocytosis which increases in the presence of suppuration. The average count in a number of cases observed at the Michael Reese Hospital was 16,000.

In tubercular peritonitis the leucocyte count is not constant. In one child two years old there was a white blood count of 20,000; in another of fourteen years 4,000 and in a third of five years 10,000. Rotch found an average of 16,473 in twenty-three cases. He declares the presence or absence of a leucocytosis to be of little diagnostic or prognostic value.

In tubercular meningitis the white blood count also varies. Cabot's statistics present the following: In twenty-seven cases one showed 52,000, fifteen were between 15,000 and 30,000; eight between 11 and 15,000 and three between 7 and 11,000. The differential count showed a high percentage of polymorphonuclear cells.

Of interest is the finding of v. Hayem of only a moderate increase in the blood plasma in tubercular meningitis in distinction to the marked increase in purulent meningitis.

In bone tuberculosis there is frequently a slight leucocytosis which is increased by secondary infection.

In acute miliary tuberculosis a normal count or a leucopenia is the rule. In one child of twelve whom Dr. Michael had the opportunity to study the white blood count never exceeded 4,000.

The blood has been studied after the injection of tuberculin. Once shortly after an injection Botkin found an acute leucocytosis which fell again the day after. He found an increase in the eosinophile cells as well. The increase in eosinophiles was, also, observed by Zappert who in one instance found 26.9%.

In children suffering from hereditary syphilis there is nothing characteristic in the blood. All grades of anemia have been observed, from mild to severe forms, with very low blood counts

and great variation in the size and shape of the erythrocytes. The hemoglobin is lower in proportion to the number of red cells than in ordinary anemias. Myelocytes and nucleated red blood are frequent in these severe forms; a leucocytosis is the rule. The writer had charge of a child of five years with some stigmata of hereditary syphilis. October 14, 1905 the blood findings were as follows: White blood cells 17,700; red blood cells, 3,790,000; hemoglobin 50%. On November fourth the red blood cells had fallen to 2,610,000 the hemoglobin to 15%. Inunctions of mercury and the internal administration of potassium iodide immediately produced improvement. By November 22 the red cells had increased to 3,800,000; the hemoglobin 40%. Improvement continued and the last count showed red cells 4,000,000; 60% hemoglobin and 9,900 leucocytes.

The finding of the spirochaete pallida in the blood of children suffering from hereditary syphilis is of great interest and diagnostic value. Babes and Panea found the organism after death in the heart's blood. Nigris procured a drop of blood by puncturing a papular lesion in the sole of the foot in a child one month old and succeeded in isolating the spirillum. Petit and Minit record a case of hereditary syphilis in which the patient died of malaena and haematemesis; spirochaete pallida were isolated from the heart's blood.

Like syphilis, rickets produces no characteristic blood picture. In mild cases the findings are slight secondary anemia with a leucocytosis which is dependent upon the catarrhal inflammation of the mucous membranes. In the severe forms there is a marked reduction of the red blood cells 2,500,000 to 3,000,000 and the hemoglobins, microcytes, macrocytes, poikilocytes, myelocytes and nucleated red cells are found in stained specimens and the leucocytosis is marked.

The blood findings in marasmus and gastro-enteritis are interesting. The blood of extremely atrophic infants does not show a reduction of the red cells but frequently a polycythemia 5,800,000 to 6,500,000. The hemoglobin, also, is relatively high, although low percentages, 69% to 75%, do occur. The specific gravity is high, 1.063 to 1.065. These findings, in pale atrophic infants on whom one expects a low count are explained by the great loss of body fluids and the resulting blood concentration. Smears from the blood of very marasmic babies show macrocytes, microcytes and poikilocytes. The leucocytes are usually near the lower normal limits and are often subnormal (4,000 to 5,000). If a leucocytosis is present it is the result of a complicating eczema, furunculosis or catarrh of the mucous membranes.

The blood in mild cases of chronic enteritis in children shows simply a secondary anemia with a slight leucocytosis. In se-

vere long-standing ones there occurs an extensive irritation of the blood-making organs, which results in the presence of nucleated red cells and myelocytes in the blood.

Dr. Joseph A. Capps discussed the anemias of childhood. He doubts that a pure type of chlorosis exists and considered various theories of causation, especially the possible dependence of the disease on a disturbance of ovarian secretion.

There are three groups of pernicious anemia of which a definite cause has been found (1) parasitic, of which the anemia caused by the bothriocephalus is the best example; (2) metabolic, illustrated by repeated hemorrhages; (3) that due to chemical toxins, shown by Bunting's experiments with ricin. It is possible, therefore, that the clinical pictures of pernicious anemia may result from severe hemolytic poisons, some of bacterial origin, some of chemical or metabolic.

Leukemia is comparatively common in childhood. The acute lymphatic form is the prevalent type. There seems little doubt that this is an infection, considering the throat inflammation, fever, rapid hemolysis, gland enlargement and clinical course. The fact that an interne in a hospital develops all the symptoms of the disease while caring for a patient, also points to the possibility of its infectious nature.

Pseudoleukemia was defined to include both Hodgkin's disease and splenic anemia. Grawitz describes 3 groups:

- (1) Simple gland hyperplasia.
- (2) Tubercular gland hyperplasia.
- (3) Syphilitic gland hyperplasia.

Many organisms are found in the glands, i. e., staphylococci, streptococci and colon bacilli and are looked upon as secondary invaders.

It is striking that regardless of the etiological factors, the symptoms and clinical course is the same, i. e., extensive gland hyperplasia, cachexia and fatal termination. This suggests that the lymphatic glands possess an internal secretion which once excited sets up a general gland hyperplasia and produces a general toxemia and cachexia. Kocher points out that individuals with the lymphatic constitution are especially prone to pseudo-leukemia.

If this theory is sound, there is additional reason for the excision of chronically enlarged glands.

Dr. Edward Elliot reported a case of purpura fulminans in a child of twelve years.

Dr. Hultgen opened the discussion. He thought Dr. Churchill's paper upon the morphology of the blood in normal children was particularly appropriate as there can never be too much physiology for daily practice. What Dr. Churchill calls the infantile blood picture seems especially accurate and sig-

nificant for the speaker has observed that white blood cells behave under irritation like any other cell in the body, that is they return to their embryonal or infantile type. If, for example, in a total count of 6,000 white cells there is a differential count of say 55 per cent. polynuclears, 37 per cent of small mononuclears, $4\frac{1}{2}$ per cent. of large mononuclears, $3\frac{1}{2}$ per cent of eosinophiles, the infantile type of blood-picture is illustrated.

Referring to Dr. Capps' paper, Dr. Hultgen said that the study of leukemia and pseudo-leukemia had occupied his attention for several years and that the subject was still far from clear. In a little girl, six years old, of good parentage, well developed, well built and always healthy, examination showed a temperature of $102\frac{1}{2}$, pulse 118. She had had indefinite pains in abdomen and severe diarrhea which had lasted two days. A blood count showed 61,200 total whites of which 15 per cent. were polynuclears, 74 per cent small mononuclears, 5 per cent. large mononuclears and 6 per cent. eosinophiles. This appeared to be a case of lymphatic leukemia; but three days afterwards the blood showed 32,000 total whites, 4,000,000 reds, 26 per cent polynuclears, 61 per cent. small mononuclears, 6 per cent. large mononuclears and 7 per cent eosinophiles. Three days afterwards the patient felt well, had only a few stools a day, good appetite, temperature 100, pulse 104 and was up and about. Ten days afterwards the blood counts showed 14,000 whites, 42 per cent. polynuclears, 39 small mononuclears, 4 large mononuclears and 5 per cent. eosinophiles. The patient recovered completely.

The speaker remarked that exceedingly often leukemic conditions pass unnoticed and that how many times patients recover from such blood affections is unknown. He thought that Dr. Capps had struck the right note in advocating the theory of a chronic intoxication, possibly from thyroid sources.

Dr. Gurlee referring to Dr. Hess' paper, said that he had observed that eosinophiles disappear during an infection and reappear afterwards and asked for an explanation of the phenomenon.

Dr. Hultgen in answer to Dr. Gurlee's question concerning the eosinophilic leucocytes in infections said that assuming that Pappenheim's theory of the genesis of leucocytes to be correct, the eosinophiles may be regarded as a variety of polynuclear leucocytes which have to do with garnering and storing up antibodies. He considered eosinophiles as a vanguard of the defensive army of the organism. The invasion of the blood by parasites or toxins caused these cells to disappear and they do not reappear until recovery sets in. This is well illustrated in typhoid fever, in which as he showed three years ago that the eosinophiles disappeared earlier and were absent longer than in

any other infectious disease, because typhoid fever is a bacteriemia *par excellence*.

The presence of a large number of eosinophiles in the circulation presupposes that toxins or anti-bodies have entered the blood-stream while the absence from the blood of protective substances, toxins, antitoxines, etc.

Dr. Butler remarked that blood serum reactions had recently attracted attention and often helped to establish a diagnosis especially in chronic infections. He had found the serum reaction of considerable use in syphilitic cases and said interesting results were obtained with the blood of patients who showed no symptoms but were born of syphilitic parents and he called especial attention to its bearing on syphilitic infants in their later history. He said some syphilitic children presented such slight symptoms as to be overlooked, but which might develop later into an attack on the nervous system.

Dr. Hess said he agreed that an increase of eosinophilic cells is simply a general tendency on the part of the blood to overcome infection.

A Frequent, Hitherto Undescribed Disease of Certain Bones, Occurring in Childhood.—A. KOHLER, Wiesbaden. Muenchener Medizinische Wochenschrift, September 15, 1908. The three cases reported occurred in boys varying from 5 to 9 years in age. All three complained of severe pain along the mesial side of the dorsum of the foot in the region of the scaphoid bone. The pain was complained of by day and by night. In one case it was bilateral. As a consequence the children limped. The foot in one case appeared slightly flat, in the other the arch was exaggerated. The x-ray showed the scaphoid, in all three instances, reduced in size ($\frac{1}{4}$ to $\frac{1}{2}$ the normal); its contour was irregular and narrowed; the bone structure obliterated and the calcium deposit increased. In one case similar symptoms were complained of in one knee, the x-ray showing corresponding changes. The course was chronic, complete recovery supervening in 2 to 3 years. No symptoms of rachitis, myxedema or Mongolism were found, while tuberculosis or other forms of osteomyelitis could be positively excluded, lues also being very unlikely. Skiagraphs after the disappearance of the symptoms showed that the bones had resumed their normal structure.

ASSOCIATION OF AMERICAN TEACHERS OF DISEASES OF CHILDREN.

ANNUAL MEETING.

CHICAGO, JUNE 1, 1908 AT 2 P. M.—GREAT NORTHERN HOTEL.

DR. SAMUEL W. KELLEY, OF CLEVELAND, IN THE CHAIR.

Dr. Bevan, who was first on the program, being unavoidably delayed, President Kelley asked Dr. I. A. Abt of Chicago to address the members of the Association. Dr. Abt spoke as follows:

"Mr. Chairman, Ladies and Gentlemen:—I take great pleasure in welcoming you to this city. I am sure that this representative body of teachers from all parts of the country will have valuable messages to deliver that will favorably influence us in the teaching and in the study of pediatrics. We occupy in this branch of the work a peculiar position. We are just being heard from in some sections of the country. It seems hard to convince the profession at large that pediatrics deserves special mention or that it is a separate and distinct branch of the science of medicine, and much credit is due to those men who are working so earnestly to raise the standard of Pediatric teaching. The internist and the pathologist are working diligently in their respective fields, but, the real, clinical contributions to pediatric knowledge have come from the labors of those men engaged in the study of diseases of children. I believe it would be well for us to be united in our work and make ourselves felt. If we band ourselves together as teachers we will not only have greater influence in our respective faculties, but we will also confer a great blessing upon students who are graduated—we will give them something that they have needed but have not obtained. It is needless to add that we are engaged in teaching one of the most important branches in the field of medicine. As we progress we shall be more definitely recognized in our efforts to promote the welfare of infancy and childhood. Permit me to again welcome you and wish for this Association, a long and prosperous career of usefulness.

PRESIDENT KELLEY'S REMARKS ON THE DEATH OF DR. JOHN C. COOK.

"I cannot dispel from my mind the thought that one I had hoped and expected to meet here to-day is not with us—not with us in the body. And I cannot lift from my heart a weight of sadness because he has been taken from us. One of the great-

est pleasures I had anticipated at this meeting was to greet our good and stanch friend, Dr. John C. Cook. It is a source of deep satisfaction to be associated in a work you love with such men as he was, whom we loved and respected and admired for his sterling qualities and downright worth.

To lose such a man and such a friend—one of the founders and the Secretary of the Association—is indeed a heavy grief and loss. Before our meeting is ended we must attempt to formulate some expression of our esteem and of our sorrow.”

A motion prevailed that the president appoint a committee to formulate such resolutions, and he appointed Drs. A. C. Cotton, W. C. Hollopeter, and H. M. McClanahan, who reported the following:

RESOLUTIONS ON THE DEATH OF DR. JOHN C. COOK.

Whereas, we have learned with sincere regret of the death of Dr. John C. Cook, a charter member of this Association, an earnest worker for its welfare and a man esteemed by his colleagues,

Therefore, we realize that his death is a distinct loss to the Association and to the profession at large. We hereby extend our sympathy to his family and friends, and direct that a copy of these resolutions be sent to the family and be entered on the minutes of the Association.

These resolutions were unanimously adopted by a rising vote.

The following addresses and papers were then presented:

The Association of American Teachers of the Diseases of Children, and Suggestions for Work Which It May Fittingly Undertake. Address of the President, Samuel W. Kelley, M. D., Professor of Diseases of Children, Cleveland College of Physicians and Surgeons, Med. Dept. Ohio Wesleyan Univ. (See Pediatrics, July, 1908).

The Teaching of Pediatrics as Seen by an Inspector of Medical Colleges. Frederick C. Zapffe, M. D., Secretary American Medical College Association, Chicago, Ill.

The Teaching of Pediatrics in the European Schools.—By H. M. McClanahan, M. D., of Omaha, Professor of Pediatrics, University of Nebraska. (See Pediatrics, November, 1908).

The Teaching of Pediatrics in the Medico-Chirurgical College of Philadelphia.—By W. C. Hollopeter, M. D., Philadelphia, Professor of Pediatrics in the Medico-Chirurgical College. (See Pediatrics, August, 1908, page 494).

Case Teaching in Pediatrics.—By William W. Butterworth, M. D., of New Orleans, Associate Professor Diseases of Children, Tulane University. (See Pediatrics, July, 1908, page 438).

Anatomical Peculiarities of Infants and Children.—By Richard B. Gilbert, M. D., Louisville, Professor Diseases of Children, Louisville University, Medical Department. (See Pediatrics, November, 1908).

The Present Status of Medical Education in the United States. Address by Arthur Dean Bevan, M. D., Professor of Surgery, Medical Department University of Chicago; Chairman Council on Education A. M. A.

DISCUSSION ON THE PAPERS OF DRs. KELLEY, ZAPFFE, M'CLANAHAN, HOLLOPETER, BUTTERWORTH, GILBERT AND BEVAN.

Dr. A. C. Cotton, of Chicago: We are all edified by the statements of Drs. Zapffe and Bevan who are so well qualified to speak on the subject of Pediatrics in the curriculum. Both of these gentlemen so well informed prove that the committee should have a Pediatricist who could see with Pediatric eyes. When we hear that ten percent of the senior year would be a fair apportionment of the time for Pediatric study and sixteen percent for Obstetrics and Gynecology, I must say that these gentlemen have forgotten that they were once children. What percentage of our patients will come under the care of the Gynecologist and the Obstetrician? What proportion of humanity comes under the care of the Pediatricist? Note if you please the large number of deaths due to the lack of the Pediatricist's services. They should have some one on the committee to represent Pediatrics, and it should be the pleasure of the alumni of the various colleges to appoint such men. In this respect we are sorely lacking, and I must say that our department of the profession is treated in a step-motherly sort of way.

Dr. Chas. Douglas, of Detroit: It would be impossible to be here and not be impressed with the good purpose of this society. It seems to me that it is a very happy event in our medical careers to have a number of teachers drawn together to present their views and expressions to others. I believe there is no doubt but that we will all uphold them in this work, because we can all use some of the points brought out in the papers just read for our own edification and for the benefit of the students who come under our care. I am benefitted by learning what is being accomplished by our friends in Europe, as demonstrated by the paper of Dr. McClanahan. We realize in the practice of medicine that we look for advances to those men who have the greatest facilities at their command, and in listening to the excellent papers of Dr. Hollopeter and Dr. McClanahan, and the remarks of Dr. Butterworth on his methods of case teaching, I think that we cannot but be benefitted. Dr. Gilbert's clinical demonstration benefitted us very much, and it makes us feel refreshed and interested.

Dr. Godfrey R. Pisek, of New York: I have been very much interested in the papers just read. Dr. Gilbert's paper especially interested me, because I have been in the habit of opening my lectures with a demonstration on the cadaver. As a rule I have fresh specimens. By this almost kindergarten method the student obtains impressions that he does not soon forget.

We can demonstrate the anatomy and at the same time show the students how to perform an autopsy on a child, and later can illustrate some operations on the child cadaver, which help the students all through the course. Before the course is ended, intubation is practiced, and the student is taught to do tracheotomy, lumbar puncture, etc. With the X-ray pictures that can be made on the specimen, you may further demonstrate anatomical structures and bone growth.

As to case teaching: Dr. Butterworth uses the method in an admirable way. However, I would rather favor the student making his diagnosis at the time of his first reading, instead of allowing a senior student a certain length of time in which to prepare it. Tentative diagnoses may be made and discussed by the class and prognosis and treatment outlined, and in this way the method will be of great value to the student in his future pediatric practice. Infant feeding cases may likewise be demonstrated and marked out by the case methods.

Dr. William J. Butler, of Chicago: I want to indorse the remarks of Dr. Douglas. He has summed so well the great and good purposes of an association of this kind. I desire to ask a question of Dr. Gilbert in reference to the position of the stomach. In the past two years, I have examined something like one hundred children for enteroptosis. The method employed in these examinations was that of inflating the stomach by mixture of soda bicarbonate and bismuth, and then resorting to the X-ray for a picture of this particular organ of the body. The position of the stomach in late childhood did not differ materially from that of a later period. I found not infrequently cases of the so-called "vertical position," showing clearly the outline of the stomach, and the position of the pylorus. Many of these cases showed part of the general picture of enteroptosis which can be found in childhood more frequently than we think. I simply wish to direct attention to the fact that not only is the position of the stomach vertical with respect to the pylorus, but it is in connection with enteroptosis in later life. We may be able therefore to associate many of our cases of enteroptosis with malnutrition of the stomach during the first and second years of life.

Dr. John Zahorsky, of St. Louis: I want to add a few words to the subject of infant feeding. In our university the student is first drilled in the preparation of all kinds of foods,

for a period of two months, which I think is one of the things which ought to be taught students. Having been drilled in preparing foods, cases are then brought to their attention. In order to illustrate other methods of feeding, I secure cases from my private practice which have the histories written up, etc. These are given to the students, and they are asked to write a prescription for the baby. Their treatment is then compared with the treatment on my case records. I think that this is the best method for drilling the students.

Dr. J. W. Van Derslice, of Chicago: Speaking of anatomy and pathology in the child: Dr. Cotton gives an eighteen hour course at the Chicago University and the classes taking that course have requested that it be lengthened. I merely mention this to show that the students appreciate it and think it very important.

The Doctrine of Difficult Dentition.—By Theodore J. Elterich, M. D., Professor of Diseases of Children, Western University of Pennsylvania, Medical Department. (See Pediatrics, October, 1908, page 595).

DISCUSSION.

Dr. John Zahorsky, of St. Louis: For the past ten years a man in my city believes that dentition produces disease, and you can probably recall cases of your own where there has been some local trouble with the teeth. During this process there is a serous extravasation into the tooth sac and the gums. To relieve this the sac should be lanced. The first molars usually cause the most trouble, and I often find hemorrhages into the sac which causes intense pain. I had one such case within one week ago and it turned out to be a case of scurvy. There is another condition we frequently meet with and that is abscess. Prompt lancing for this affection is probably the best treatment.

Dr. R. B. Gilbert, of Louisville: There is no use in delving into this time-worn subject of dentition and disease. I am in accord with the views of Dr. Elterich, and have never seen any pathological conditions arising from dentition. The abscesses we encounter are due to some infection, and I consider that dentition is a purely physiologic process.

Dr. J. Ross Snyder, of Birmingham: I am always rather timid when it comes to discussing the question of dentition. I formerly believed that dentition per se causes no pathological conditions. However since I have cut a wisdom tooth, I sympathize with teething babies. I do not believe that teething will result fatally to any infant, but to go to the extent of saying that teething does not produce anything but teeth, is taking a most extreme view of the matter indeed.

Charles Cook, D. D. S., of Chicago: This is a phase of dentition I have not had much to do with for a great many years. The views of Dr. Elterich as expressed in his paper, seem to be a sensible way of considering the subject. However, Dr. Zahorsky spoke of pus sacs. There is one thing that I observed in the eruption of the teeth, and that is that the epithelial tissue of the tooth becomes thickened until the second period of dentition is reached. This frequently breaks, and becoming infected gives us an abscess. It seems to me that there is no reason to believe that we should have a purely pathological condition arising from dentition any more than should result from the growing of the nails, because it is naturally a process of nature, providing for certain periods of life with respect to the organs of mastication. In reference to the eruption of the third molar spoken of by Dr. Snyder: When this tooth is erupted the arch is filled with teeth, and as a rule there is a shortening of the jaw, and instead of a space for 32 teeth to fill the arch, there is really only room for 28 teeth. It is the eruption of these teeth that brings about the development of the jaw in the individual. The eruption of the third molar is very painful where the jaw is not elongated sufficiently. In a series of experiments carried on by my brother and myself about five or six years ago, we found that from the sixth to the tenth year of life, the gastric fluids had no effect on the bacteria, while somewhat later they had. There is something in the gastric fluids that prevents the growth of bacteria, but at the ages quoted it seemed that the fluids of the stomach were unable to kill the bacteria which would pass from the stomach unharmed into the intestines, setting up an irritation therein, and producing a diarrhea. I have come to the conclusion that the mouth was responsible for many of these intestinal diseases of children.

Dr. Charles Douglas, of Detroit: We ought to reconcile the difference of opinion on this subject. For example we find an abscess over a tooth. The child is feverish, irritable and restless, corresponding to the amount of digestive disturbance present. If the diet is not cared for properly, diarrhea results, not directly, but indirectly due to teething. Therefore, we ought to be somewhat conservative in this matter, and differentiate between intestinal disturbances due to teething and those that are not.

Dr. Elterich, closing: I merely want to say a word about the beginning of dentition. It commences about the seventh month and continues until the entire set is erupted. It never produces any harm, and scarification of the gums is not only harmful, but unsurgical.

EVENING SESSION.

What Conditions demand Total Weaning and what demand Partial Weaning of Infants during the First Two Weeks of Life?
By Charles Douglas, M. D., of Detroit, Professor of Diseases of Children, Detroit College of Medicine. (See Pediatrics, August, 1908, page 481).

DISCUSSION.

Dr. Godfrey R. Pisek, of New York: It seems to me that we ought to be a little more conservative on this question. I do not quite agree with Dr. Douglas in weaning babies so soon. If the mother is in good condition, and the baby has green stools, I would have the milk examined to ascertain the percentages of fats and proteids, and if these ingredients were low in percentage, the mother should be put under a plan of treatment and diet which might improve the quality of her milk. The mother who is anxious to nurse her baby is the one that we can most successfully work with. Those who are not inclined to nurse their offspring are very hard to manage, or to succeed with in matters of this kind. We can try mixed feeding first, and then if the baby gained in weight, despite the condition of the stools, I would still continue the mixed feeding rather than wean at once.

Dr. R. B. Gilbert, of Louisville: We have here several propositions to consider. There is no greater subject in the domain of Pediatrics than the question of feeding, especially during the first few weeks, and I want to emphasize this idea which was not brought out in the paper. The baby's life is risked when it is put on artificial food. A temporary derangement of the intestinal tract does not signify that the baby should be put on these mixed formulae. I would suggest where the mother's milk is deficient, and where chemical analysis shows a condition that cannot be remedied by medicine or diet, that the mother procure a wet-nurse rather than put a baby on artificial food in the first two weeks of life. There is this fact to consider: The baby after taking the bottle will never take the breast again. We must not forget that the change in mother's milk is sometimes only temporary. It is often due to emotions, anger, grief, etc., which facts must be considered. I do not quite agree with several of the members who insist on certain food products at all times. Oat-meal water, whiskey, etc., are good for a temporary effect. A good wholesome practice which has served me well is to advise the mother to drink freely of fresh cow's milk. What I want to emphasize most, however, was not to put the baby on artificial food if there is any possibility of securing a wet-nurse.

Dr. J. Ross Snyder, of Birmingham: I think that in considering this question of weaning at this early age, we ought to take into consideration the fact that during the first two weeks following her delivery the mother is at a disadvantage, and is not in a condition to secrete a fair amount of milk. She has probably lost a great deal of blood and strength, and she should be given a chance to recover from the effects of her labor. I think that Dr. Douglas ought to have brought out this point in his paper, as the quantity and quality of milk the mother secretes then would differ considerably from the milk she would secrete later on.

Dr. Theodore J. Elterich, of Pittsburg: I am of the opinion that it is always best to give mother and child a fair trial before resorting to weaning. It is a serious thing to wean at two to four or six weeks, and as stated by Dr. Snyder the mother at this time is at a disadvantage. The mother takes no exercise. Sometimes her diet is too generous and in many babies there are more or less digestive disturbances during the first few weeks of life. Last year Dr. Van Derslice spoke of the use of sodium citrate in feeding cases. I have used it since that time. I would like to ask Dr. Van Derslice or Dr. Douglas whether they would use sodium citrate to prevent curds in the milk?

Dr. George H. Cattermole, of Boulder: As to the question of tuberculous mothers nursing their infants: Some of these mothers are anxious to nurse their babies, and I have allowed them to do so. In a number of instances the children have developed tuberculosis of the spine or of the cervical glands. In all cases where I permitted mothers so afflicted to nurse their offspring there was no local evidence of tuberculosis in the mammary glands.

Dr. John Zahorsky, of St. Louis: Dr. Douglas gave albuminuria in the mother as a contra-indication to breast feeding. I now recall two cases where the urine contained albumin, and where no ill effect was noted in the nursing infants. I do not think that albuminuria is a contra-indication. He referred to the green stools with mucus. This condition I believe is spoken of as follicular enteritis and is a very stubborn and tedious condition to treat, and it takes quite a little time before the patient is entirely recovered.

Dr. Douglas, closing: I feel gratified to hear so many objections to some of the statements in my paper. However, I do not think the gentlemen have grasped what I most desired to express. What I want to bring out is that children with stools all green in color should be weaned early. As to weaning: I do not mean to say that a wet-nurse should not be employed, but where such a person cannot be obtained, I think it is good practice to wean the child early. I see very many cases of this kind

that are not weaned early, and the result is practically a fatal issue in every case. Therefore, I repeat, when you can get no yellow in the stools, wean early. In cases where the stools are yellow and green, keep on with the maternal nursing, but if the condition does not clear up in a short time, wean the baby at once.

The Urinary Infections in Children.—By John Zahorsky, M. D., of St. Louis, Clinical Professor Diseases of Children, Washington University, Medical Department. (See Pediatrics, September, 1908, page 543).

DISCUSSION.

Dr. Thomas G. Allen, of Chicago: I want to compliment the author of this paper. He has done a good work and we are benefitted by the results of his labors. The chief lesson to be drawn is that in every case of fever we ought to examine the urine. Since I read a few years ago that albumin was more often present in the urine of babies than we used to consider, I have thought seriously of examining the urine of all patients. I would like to ask the doctor what plan he has for collecting the urine of little babies?

Dr. H. M. McClanahan, of Omaha: In recalling the views of the paper just read, I noticed that all the patients were females, and that all the examinations showed the presence of the colon bacillus. In a work that I am having done at the present time, I am convinced that many of these cases are in females and that they are infected through the vulva rather than through the lymphatics. A few weeks ago, I saw a case post-mortem, of a little girl, who showed a most extensive pyelitis. Many of these cases are due to a cystitis and often are surgical cases. I think that this is a field from which much is to be learned. I am now conducting a series of experiments along this line, and hope to obtain very valuable information therefrom later on.

Dr. Zahorsky, closing: In answer to Dr. Allen's question in reference to collecting urine in little patients. Most of my patients are taught to use the vessel. Most of these cases referred to in my paper occurred between the age of four months and two years. I object to the use of the catheter in obtaining specimens of urine. In very young babies it is best to take a sheet of oil-cloth, in which a depression has been made, and place the infant upon the sheet. The urine when voided will trickle into the depression, and thus enable us to secure a sufficient amount for examination purposes. I still believe that some cases are due to cystitis, but there is no special reason why the kidney should be infected. I furthermore cannot understand why an inflammation of the kidney could produce any more fever than a cystitis.

Chorea in its Relation to Tonsillitis, Rheumatism and Endocarditis.—By William J. Butler, M. D., of Chicago, Assistant Professor of Pediatrics, Rush Medical College, University of Chicago. (See Pediatrics, October, 1908, page 609).

DISCUSSION.

Dr. J. W. Van Derslice, of Chicago: There was one point Dr. Butler did not bring out in his paper, and that was a definition of rheumatism. Perhaps it would be out of place for me to substitute the term "rheumatic fever" in its stead. Under the general term of "rheumatism" we should consider three entities. The infectious, rheumatic fever, which is in relation to tonsillitis, etc., should be classed as a distinct disease. The other types met with, I think should have a separate classification.

Dr. R. B. Gilbert, of Louisville: Concerning rheumatism in children, I think we ought to take into consideration the so-called "growing pains" so often mentioned. These signify but a rheumatic diathesis, and this should be kept in mind. These rheumatic symptoms are frequently met with in types of influenza, especially between the ages of three to six years. As far as the treatment is concerned, I think a diuretic, with a little sodium salicylate answers very well, and if such cases are treated in this manner, good results will be promptly obtained.

Dr. J. H. Hess, of Chicago: In regard to the case of aortic insufficiency which was reported by Dr. Butler: It is two years since Dr. Butler treated the child, and since then it has developed an aneurism. The other children spoken of, gave a history of two attacks of chorea. To my knowledge there has been no similar cases reported in the literature.

Dr. Butler, closing: Concerning the nomenclature, I believe that "rheumatic fever" is a good term when rheumatism is accompanied by fever. Regarding influenza, there is a large number of cases in children in which we recognize many of these manifestations, but we do not worry until they develop an endocarditis, and the case Dr. Hess mentioned illustrates the condition of the patient a little better than I stated. This child had several attacks of chorea, and there was no evidence of rheumatism when first seen. She had two attacks of tonsillitis, and this fact simply illustrates the old story that to have tonsillitis is a part of the picture of rheumatism and that it leads to involvement of the heart and joints. The clinical picture of chorea, tonsillitis and endocarditis is most striking, as is the direct association of rheumatism with endocarditis. The case of endocarditis which developed an aneurism was interesting, and the aneurism attributed to an aortitis which in my opinion existed.

Some Phases of the School Child.—By J. W. Van Derslice, M. D., of Oak Park, Instructor in Pediatrics, Rush Medical College. (See Pediatrics, September, 1908, page 558).

DISCUSSION.

Dr. Geo. H. Cattermole, of Boulder: I was a member of the committee which Dr. Van Derslice has mentioned, but my report is not as yet completed. In the western schools we have from three to four hundred cubic feet of air space for each pupil. We have play-grounds connected with every school building, many of which contain trees and shrubbery, and the children are always glad to keep the play grounds clean and work with the plants and shrubbery. Basements are still used when the school is crowded for room, and in such instances the facilities for ventilation are bad. Very few of the western schools have medical inspectors. When a child is sick it is sent home, but there are very few paid inspectors. Very little home work is recommended.

Dr. A. C. Cotton, of Chicago: This is a very good subject, one that we have all thought of and given our attention. However, we have not given it our entire effort. As yet, nothing has been definitely accomplished, and it is rather unusual to find a system of schools where careful, scientific inspection of the children is carried out. Many improvements have been made since we sat on the old framebenches under the old regime. All that has been said here brings out the fact that not only is our hygiene bad, but our curriculum is not adapted to the needs of the child. School inspection, by competent medical men, who study the question is the only way out of the difficulty. For years I contended that no pupil should be promoted to a higher grade without an opinion from a competent medical man as to whether the student in question was physically able to assume the extra duties imposed. That the same amount of work should be given to all the pupils of the same grade is an impossibility. An inspection shows that the so-called defective children (about 30%) in the United States, are graded with pupils presumably normal and are subjected to the same tasks. The farmer does not put a two year old horse in the race against a well trained and vigorous animal. Compare the same idea of the abnormal child being obliged to perform the same duties as the healthy one. The children are entrusted to the care of teachers who know nothing concerning the physical requirements of the child, and their only desire is to get them into the grade above. If they fail to pass them, they are reprimanded by the superintendent or principal. It seems to me that the only relief we can expect will be secured by working along the lines laid down by

the American Medical Association in appointing a committee, accentuated by such views as expressed in the paper read by Dr. Hollopeter at the convention of the American Medical Association last year. The late Dr. Christopher did some noble work in this field. We must have more work done along this and similar lines until the profession and public will appreciate it, and have a state inspection of the schools, and insist that each child be provided with a medical certificate, stating that it is physically qualified to pass from one grade to another.

Dr. J. Ross Snyder, of Birmingham: I would like to know whether the committee obtained any knowledge concerning the construction of fire escapes on the school houses through the country?

Dr. Thomas G. Allen, of Chicago: I am very glad to hear that the Association is doing something along this line. If we expect to accomplish anything we must first decide upon some definite plan of action. I have spent more years of my life as a teacher in the schools than in the practice of medicine, and I can tell you candidly that it is not always the fault of the teacher or principal. It is hard to provide play grounds for every school, but we ought to insist on having them. None of my own children have gone to school until the age of nine years. They are now doing better than if they had gone at the age of six years. As to the medical inspector: Here they are underpaid, and most of their work lies in inspecting the various contagious diseases reported. As to the amount of home work: In this city, no home work is required from pupils in the lower grades. The ordinary school curriculum causes many children to become irritable, peevish and sometimes extremely nervous. Whenever such cases come to my attention, I arrange with the principal or teacher to omit part of the work usually imposed on them, and such children then usually progress very well.

Dr. Van Derslice, closing: This paper applied to children in the first grade. It is not the work of the committee but of one man. Medical inspection in this city amounts to very little. We have here the usual system. The pupils who present any symptoms or signs of illness are sent home, with the request that appropriate treatment be instituted. All cases of mental deficiency in children should be carefully noted, and such children should by no means be expected to keep up with the normally healthy ones, but should be adequately provided for, under the supervision of a medical man. As to the question of fire and panic: At mention of this subject all our minds revert to the Collinwood disaster, the results of which were so appalling. The question simply resolves itself to this: Every school should have an out-door stairway that is used more or less constantly. The pupils should be instructed as to the use of this stairway,

its purpose, etc. Any school building that has no such provision in case of fire is liable to the same disaster as befell the one at Collinwood. However, I am not criticising the school buildings, but the teachers and others to whose care the children are entrusted. There should be fewer changes in the teaching staff; the hours of study in the school-room should be lessened, and the amount of home work be reduced; attention should be paid to the questions of hygiene and ventilation, and periods of recreation or recess should be insisted upon by the parents and carried out by the principal or superintendent.

Uncinariasis in the Southern States.—By J. Ross Snyder, M. D., of Birmingham, Pediatricist to the Hillman Hospital. (See Pediatrics, December, 1908).

The following papers were read by title:

Treatment of Pneumonia in Children by the Outdoor Method.—By Frederic W. Loughran, M. D., of New York, Visiting Physician to St. Joseph's Hospital.

Some Points on Infants' Clothing.—By Alfred C. Cotton, M. D., of Chicago, Professor Diseases of Children, Rush Medical College.

The Fallacy of Attempting to Teach Pediatrics in the Chair of Practice.—By John A. Witherspoon, M. D., Nashville, Professor Practice of Medicine, Vanderbilt University.

A motion prevailed that the president appoint a committee of five, himself being chairman, to investigate and endeavor to standardize the teaching of pediatrics in our medical schools in the manner referred to in the president's address.

The following were appointed the committee on the Teaching of Pediatrics: S. W. Kelley, Cleveland College of Physicians and Surgeons; A. C. Cotton, Rush Medical College, Chicago; H. M. McClanahan, University of Nebraska, Omaha; W. C. Hollopeter, Medico-Chirurg. College, Philadelphia; W. W. Butterworth, Tulane University, New Orleans.

The Association elected the following officers for the ensuing year:

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Vice-President—Harry M. McClanahan, Omaha, Nebraska.

Secretary—Samuel W. Kelley, Cleveland, Ohio.

Treasurer—George M. Cattermole, Boulder, Colorado.

Senator, in place of Dr. McClanahan, retiring—J. Ross Snyder, Birmingham, Alabama.

PEDIATRICS

FREDERIC W. LOUGHRAN, M. D., Editor

Published Monthly by F. M. Crossett Co., Inc., Burlington, Vt., and 30 West 33rd St., New York.

Telephone, 781 Madison.

Editorial Office: 742 Prospect Avenue, New York City.

Telephone, 607 Melrose.

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EDITORIAL.

ABRAHAM LINCOLN.

A LESSON TO PEDIATRISTS AND PEDAGOGUES.

The spell on the nation of the immortal emancipator and nation preserver, calls out many studies; it may seem far fetched to claim his life to have been among other stupendous things a lesson as captioned above. Lincoln in his report to the congressional directory styled his education as "defective;" some present day writers do likewise; yet he coped successfully with men thoroughly educated according to the most approved methods. We do not believe this success was due only to moral uprightness; there are plenty of morally upright men who are weaklings in great crises requiring the power to logically arrive at a conclusion because they have not been taught to think. Lincoln

reasoned in logical sequence and when the conclusion was reached his moral strength was there to back it up and whether on the stump, messaging Congress, directing major-generals, comforting heart-broken mothers or speaking to the whole people, north and south, his direct simple use of the English language compelled the hearts and minds of the recipients. And why—Lincoln's physical strength was a good inheritance added to by a simple out-door life; the mental powers of this giant among men were built on the foundation of a close, comprehensive and persistent study of the King James version of the Bible, Aesop's Fables, Bunyan's Pilgrim's Progress, the constitution of the United States and some other literature. This particular lesson of Lincoln, the thinking pediatricist has already learned and he, watching with alarm the growing multiplicity of studies in our primary and grammar schools, wonders whether the pedagogues, sitting in the seats of power, will also learn said lesson.

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ABSTRACTS.

Infantile Paralysis Treated by Tendon Transplantation and Nerve Anastomosis.—(Astley P. C. Ashurst, *Annals of Surgery*, September, 1908).

Case I. Paralytic varus transplantation of tibialis anticus into the base of the fifth metatarsal bone.

At the end of third week cast was changed and new one applied for five weeks longer. Two months later all motions of foot were normal, walks without limping, never falls, and it is difficult to tell which was the paralyzed foot.

Case II. Paralytic valgus; ankle drop and knee drop. Transplantation of peroneus brevis to the base of the first metatarsal bone and transplantation of gracilis and semitendinosus to the upper border of patella.

Case of infantile paralysis of ten years' standing. The quadriceps extensor femoris, the tibialis anticus, extensor longus hallucis, extensor longus digitorum, tibialis posticus and flexor longus hallucis were paralyzed, calf muscles were weak. Eight weeks after operation hamstring muscles acted well in preventing collapse of knee in walking, can slightly invert the foot and correct the extreme valgus deformity present before the operation.

Case III. Paralytic calcaneus, with varus and foot drop.

Transplantation of the anterior tibial nerve into the cutaneous, and of the peroneus longus muscle into the insertion of the tendon Achilles. This was a boy of 7 years, infantile paralysis both legs, left largely recovered, right showed moderate calcaneus with varus and foot drop. Operation as above indicated, no result from nerve anastomosis, some benefit from muscular transplantation.

Case IV. Paralytic valgus, transplantation of peroneus longus and brevis into base of first metatarsal bone. Operation successful in overcoming previous valgus. Ordinary shoe is worn with but slight limp due to the shortness of paralyzed limb.

Case V. Paralytic valgus. Transplantation of peroneus brevis and extensor longus hallucis into base of first metatarsal bone.

This was a case of a boy 7 years old, infantile paralysis when 4 years old; never had treatment. Operation enables boy to walk very well without any kind of apparatus with scarcely a noticeable limp.

Case VI. Paralytic valgus. Transplantation of peroneus longus into base of first metatarsal bone, and transplantation of distal end of tibialis anticus into extensor communis digitorum.

That was a boy 7 years old, infantile palsy at 2 years, which left him with a slight valgus and slight ankle drop of right foot. Completely satisfactory result was obtained in this case also.

Dr. Ashurst, in closing discussion in these cases, said in reply to inquiry, that he did not know how long one should expect to wait for a nerve to regenerate; ten months had elapsed in his case. He said that he had seen statements that even two or three years should be allowed to elapse before hope of a good result should be abandoned.

A New Method of Mixed Narcosis.— In order to diminish the dangers of chloroform anesthesia by reducing the amount of anesthetic necessary to a minimum, M. Bruneri gave various analgesic drugs several hours before the operation. The best results were obtained with a combination of veronal and dionin. The author reports the latter preferable to morphine, heroin, or other narcotics, as it is less toxic. By giving the two drugs together more powerful effects are obtained than with hedonal, dionin, or veronal alone. Neither dionin nor veronal have any influence upon the heart, lungs, liver, kidneys, or gastro-intestinal tract, and there will be no headache, nausea, vomiting, or lowering of the blood-pressure. The drugs can even be given to children in suitable doses. Dionin has a specific action upon the nerve-endings of the upper respiratory tract, and thus will diminish irritation.

The combination of dionin and veronal is especially indicated in nervous patients, who fear the effects of the chloroform. A stage of excitement has been observed only with alcoholics. In over 250 cases there were no bad after-effects.

The doses were as follows, given two hours before the operation: Veronal, 8 to 12 grn., dionin, 1-6 to 1-2 grn., for men; veronal, 6 to 8 grn., with the same amount of dionin, for women; and veronal, 4 to 6 grn., and dionin, 1-6 grn., for children. As a rule, 75 min. of chloroform will suffice to induce narcosis. After the operation the patients will suffer from none of the usual disagreeable symptoms. The pains are slight; there is no paresis of the bladder or vomiting. From 5 drams to 1 oz. of chloroform were usually necessary to keep up the narcosis for one hour. Chloroform by this method may be resorted to where chloroform alone would be dangerous.—Gazz. med. Ital., 1908, No. 30.

Veronal in the Insomnia of Mental Diseases.— SALLUSTE ROY, physician to the Insane Asylum of Beauport, Quebec, reports that veronal commended itself to attention in the insane asylum, since insomnia is one of the most frequent symptoms

and the most difficult to combat in the treatment of psycho-neuroses and most mental diseases. Some experiments were accordingly made in cases of rebellious insomnia, in the great majority of which hypnotics had been habitually employed.

The following is a summary of the results obtained in these investigations: In two cases of acute maniacal excitement in which the other hypnotics had proved unreliable in their action, veronal produced a calm and refreshing sleep of four to six hours' duration. The same results were obtained in the case of an insane patient who during periods of excitement had shown himself refractory to the action of other hypnotics. The doses in these cases varied from 15 to 25 grn., the results consisting in an abatement of the symptoms of excitement, showing that this medicament, besides its hypnotic qualities, has a marked sedative effect upon the cerebrum.

In melancholic depression and in neurasthenia and hypochondriasis it promptly produced a natural sleep of six hours' duration, the dose employed not being greater than 10 to 15 grn. in the majority of cases.

Among other medicaments of this kind (sulfonal, trional, etc.) veronal has the advantage of being more rapidly absorbed, and hence of acting more reliably. In the author's experience its effect is never delayed more than one-half hour. Its slightly bitter taste can be readily concealed, and its administration thus rendered more easy than that of paraldehyde, which on account of its harsh taste and strong odor cannot be masked. This ease of administration is an advantage in the treatment of demented subjects, especially where one often finds himself obliged to resort to some subterfuge or ruse in order to make acceptable the medicament to patients who are not guided by reason.

The sleep produced by veronal approaches the normal physiological, and it is only exceptionally followed by slight malaise on awaking. In brief, it is a remedy which is destined to become a very valuable agent in the treatment of mental and nervous diseases. Its field of action does not seem to be limited to its hypnotic properties; it manifests at the same time a particular sedative effect in conditions of cerebral excitement.

Judging from the results obtained in these tests, the author does not hesitate to say that veronal is destined to gain the first place as an hypnotic in the therapeutics of mental diseases in particular.—*Le Bull. Med. de Quebec*.

Fibrolysis in Cicatricial Pyloric Obstruction.—MURRAY B. STEUART reports a case illustrating the marked property which fibrolysin has of rendering hard fibrous adhesions sufficiently soft to allow them to be stretched.

The patient was a house painter, aged sixty. When about the age of fifty gastric trouble recurred, and took the form of "hunger pain" coming on two or three hours after a meal, and also markedly in the middle of the night. Vomiting was frequent in the afternoon and in the interval between tea and bedtime, pain being relieved thereby. The vomited matter consisted of undigested but recognizable food, showing lack of motor power in the stomach, narrowing of its pyloric orifice, or probably both. It was not particularly sour, proving that fermentation was not a prominent factor.

The above condition continued, more or less, till patient came under the author's care in Nov., 1907; at that time there was considerable dilatation of the stomach, splashing being readily elicited. He was much emaciated, and hardly able to do any work. The author began treating him by lavage of the stomach and argenti nitratis, gr. $\frac{1}{4}$ in pill taken twice daily, diet consisting of milk, raw eggs and meat purées. Under this régime he improved, vomiting ceased, pain was relieved and there was an increase in weight.

Towards the end of Feb., 1908, he had a recurrence, and similar treatment was again tried, but the symptoms were so severe gastro-enterostomy was suggested, but was declined.

Hypodermic administration of fibrolysin in the epigastric region was then begun in doses of 2.3 Cc. daily for a month, every other day for a week, and thereafter at intervals of three or four days for three weeks more, at the end of which time all treatment ceased. Massage of the abdomen—especially in the region of the stomach—was carried out daily for a month, commencing on the same day as the fibrolysin injections, and was stopped at the end of that time. Internally a mixture containing liquor strychninæ and nitro-muriatic acid was administered, and a diet consisting of milk, farinaceous food, raw eggs, and fish.

The result of treatment with fibrolysin showed itself within the first week after its commencement by greater comfort generally, cessation of vomiting after ten days, and of all pain within a fortnight. Constipation, from which he had suffered all his life, improved, the bowels acting once a day without the administration of any aperient medicines. He rapidly put on flesh and gained in vigor, and has done his day's work ever since without fatigue or discomfort of any sort.

There is one factor necessary to success in treatment of adhesions (wherever they may be situated) by fibrolysin, and that is that they must be in such a position where they can be massaged and stretched. Otherwise, although they are rendered

soft, they remain in the same relation to surrounding tissues, and no good result is obtained.

In this patient massage was carried out externally by the hand, the motor power of the stomach being thereby encouraged—and stretching of the adhesions was effected by this power being brought to bear on the contents of the stomach, forcing them through the narrow but now dilatable pylorus.

It is therefore necessary in treating such cases as the above by this method that the stomach be capable of some peristaltic action, otherwise operation offers the only hope of cure.—*British Med. Jour.*, Aug. 29, 1908.

Infant Mortality (*Jour. A. M. A.*, Sept. 26, 1908).—Edwin E. Graham, M. D., the writer, has covered this subject in a most careful manner, and has brought out a number of interesting points. Infant life insurance and burial clubs cause the death of many by neglect. The death rate of illegitimate children is higher than of legitimate children. In war times it is shown that the death rate often declines in manufacturing towns due no doubt to the fact that the mother does not work in the factory but stays at home and nurses her infant. The author offers the following suggestions that will help to reduce infant mortality:

Abatement of nuisances.

Milk inspection; milk dispensaries; visiting nurses.

Free antitoxin.

Improved sanitation.

Good food.

Education of girls and married women in the duties and requirements of motherhood.

Maternity fund in all industrial establishments where married women are employed.

Care of poor pregnant women before and after confinement.

Laws carefully protecting all children who are cared for by private individuals, apart from their parents; rigid enforcement of these laws.

Elementary principles of hygiene taught in all schools, public and private.

Nursing of all babies as far as possible, by their mothers.

Sending children to the country in summer.

Pasteurizing milk during the hot months.

Farming out, under proper medical supervision, of foundlings and institution infants, and the appointment of nurses to visit these infants regularly.

Pyopericardium in Children.—F. J. Poynton (Brit. Med. Jour., Aug. 15, 1908), finds that this lesion may occur in a general pyemia consequent upon a local infection, and complicating such lesions as suppurative otitis media, osteomyelitis or septic wounds. In such cases septic abscesses may be found throughout the body. Pericarditis is most serious in these circumstances. In children under twelve pyopericardium is almost invariably associated with pulmonary disease, which is most commonly of pneumococcal origin. Males and females are equally affected; 83 per cent. occur before the fourth year, 66 per cent. between the first and third year. Primary pyopericardium is very rare. The diagnosis is very difficult. The early age of the patient is a difficulty. There is usually absence of pericardial friction; the poisons leading to this lesion have a more peptonized or digestive power than the rheumatic, so that the exudations are softer and more creamy in consistence and less harsh, so that friction is much less frequent. There are the complicating signs of such severe pulmonary disease as pneumonia, pleurisy and empyema. There is finally the absence of endocarditis. There are three kinds of cases. The acute (which make up 20 per cent.), running a course of four weeks; the subacute (50 per cent. of the cases) lasting from one to six months; the chronic (17 per cent. of the cases) with insidious onset and lasting from six months to over a year. The more important signs are: progressive muffling of the heart sounds synchronous with enlargement of the cardiac area, together with marked dullness over the pericardium and sometimes posteriorly in the interscapular region. Tubular breathing or absent breath sounds may also be noted in the interscapular region; a rapid and extensive increase of the cardiac dullness upwards toward the left clavicle; the pear-shaped outline of a distended pericardium; abrupt transition from the dullness of fluid to resonant lung tissue, a wavy and diffuse pulsation to the left of the sternum. The most common error in diagnosis is to take part for the whole truth—stopping short at pneumonia or empyema. Pyopericardium may be diagnosed as tuberculosis. The prognosis is very grave; unless a specific serum be obtained treatment will not greatly avail. Surgery offers the best chances at present.—Medical Times, Nov., 1908.

PEDIATRICS

Vol. XXI

MARCH, 1909

No. 3

ORIGINAL ARTICLES

THE RELATION OF MINERAL METABOLISM TO NUTRITIONAL DISTURBANCES IN THE INFANT.

BY WILLIAM WEINBERGER, M. Sc., M. D.

(FROM THE LABORATORY OF BIOLOGICAL CHEMISTRY OF COLUMBIA UNIVERSITY, AT THE COLLEGE OF PHYSICIANS AND SURGEONS.)

NEW YORK.

The importance of the inorganic salts in nutrition and their behavior in the animal economy have not been appreciated until recently. Although on their way through the body the inorganic substances do not participate directly in the production of heat, yet they play an invaluable part in the general metabolism. We cannot conceive of growth without the participation of the mineral salts. We know them to be irreplaceable constituents of cell protoplasm and find them in soluble forms, in all tissue fluids of the body. Many of the chemical processes in the organism depend on the basic nature of these body fluids. The importance of the bases in certain secretions such as saliva, the pancreatic and gastro-intestinal secretions, their continuous participation in the construction of bone and muscle tissue, and their action in neutralizing the acids formed in the intermediary metabolism explain the deleterious results that follow their reduction in the food below a certain level.

An entirely *new* function of the inorganic salts in metabolism has been shown by the investigations of the last decade. The mineral salts are an important factor in the preservation of the osmotic equilibrium. Katabolism increases the molecular concentration of the tissue fluids, i. e., their osmotic pressure. Physical laws explain the tendency of the organism to establish an equilibrium in the osmotic pressure of the blood serum. Of the several means to this end the most important besides an unimpaired renal action is the regulating power of the dissociable mineral salts. These facts show that interference with the proper supply of mineral salts in the food will have a serious influence on the maintenance of health. This is well illustrated by experiments of Forster¹, who did not succeed in keeping adult animals alive when all mineral salts were withdrawn from their food. Indeed, life ceased within a shorter time under such conditions than in absolute starvation. Even addition to the organic food constituents of the ash contained therein did not prevent the death of the animals, a fact which shows in a striking manner, that certain chemical composition and combination of organic and inorganic materials in the food is a necessity. If there is an intimate relation between life and availability of mineral salts in the proper form to the adult, how much more is this the case in the infant, whose organic development depends upon the rapid formation of new cell material, and whose increase in body weight in the healthy state occurs daily.

Many and complex are the problems confronting the student of infantile metabolism. The pathology of the infant differs greatly from that of the adult on account of the different chemical composition and biological behavior of the body, the soil which harbors the pathogenic agents. The infantile organism reacts with rapidity; the symptoms of a disturbance are very pronounced; the evolution of a disease is surprisingly sudden and so is its termination. A consideration of the biological action of the mineral constituents of the body will greatly contribute to a fuller

¹T. Forster. *Zeitschrift fur Biologie* IX. 1873, and *Munchner med. Wochenschrift* 1907, p. 2412.

understanding of this important and characteristic feature of infantile life.

The recognition of these facts is the result of numerous researches undertaken with the view of analyzing the complex phenomena presented by disturbances of nutrition. Daily experience teaches us that nutritional disturbances occur most frequently in infants receiving artificial food, and that the infant partaking of the food which nature provided for it, i. e. mother's milk, is more or less exempt. The investigation of the biological differences between human and cow's milk led to the disclosure of a number of facts which clearly showed that each organism, in its development, needs a nutritive fluid *sui generis* containing the construction units which make up the structure of the body in a composition and arrangement most suitable for each species.

Differences in the chemistry of the two kinds of milk; the homo- or heterology of the milk protein; the influence of sterilization on the digestibility of the several constituents of milk; the presence or absence, respectively, of enzymes in natural and modified milk and finally, the transmission of immunity through mother's milk were individually and collectively considered as important factors in the different biological effects of human and cow's milk. But the possibilities of other influences in this direction are by no means exhausted. L. F. Meyer² found recently that infants, in the convalescent stage from grave disturbances of nutrition, thrived, if fed on whey prepared from mother's milk, plus casein and fat derived from cow's milk, but that nutritional disturbances arose at once, if the food consisted of the casein and fat from mother's milk added to whey of cow's milk. As the chief difference between the two kinds of whey lies in their salt content, the deduction appears justified that the infantile organism best assimilates and utilizes the kind of milk, whose mineral constituents are in that concentration and combination which is produced by females of the species, i. e., peculiar to the species.

²Meyer, L. F. *Monatsschrift für Kinderheilkunde* V, No. 7.

Loeb's³ epoch making experiments showed that the biological behavior of the organism if in a liquid medium, is dependent on the concentration of the salts in that medium; that very slight variations in the molecular arrangement or concentration of the mineral salts are apt to arrest life. It is quite possible that similar circumstances account for the sensitiveness of the alimentary canal of the infant to cow's milk. We need only assume that the intestinal epithelial cells perform their several functions best when surrounded by the salt milieu of mother's milk, and that contact with the non-physiological salt solution of cow's milk has a disturbing influence upon them.

A disturbance in the nutrition of the infant may be the consequence of this injury. Nature endows her creatures with a certain power of accommodation to environment. Nutritional disturbances are the expression of a qualitative and quantitative impairment of this adjustment of the organism to variations in the food. While the healthy infant is able to absorb and assimilate milk mixtures of different concentrations, and food stuffs of different origin, any pathological condition of the nutritive organs will divest it of this power to a varying extent, until finally ingestion of any kind of food is followed by disturbances dangerous to its life.

The various nutritional diseases of the infant are, according to Finkelstein's conception,⁴ different pathological stages, through which the infantile organism is bound to pass unless the offending factor is eliminated from the food.

A characteristic feature of the thriving infant is the regular and almost uninterrupted increase in its body weight. Except the reduction in weight during the first few days of life, which is physiological, any aberration from the upward direction of the weight curve indicates a pathological state and ought to arrest the attention of the observer. Frequently a milk fed baby that showed the normal daily increase in body weight ceases to thrive.

³Loeb, J. *Dynamik der Lebenserscheinungen*, Leipzig, 1906; and *Kunstliche Parthenogenese*, Leipzig, 1906.

⁴Finkelstein. *Jahrbuch für Kinderheilkunde* LXV, 1907, pp. 1, 264, and LXVI, 1907, p. 1,

The weight remains stationary or increases slowly; addition of more milk to the food will not increase the weight, as is normally the case, but is followed by a slight loss in weight (paradoxical reaction). This disturbance, so common with children fed on cow's milk for a long time, is caused by an acquired deficiency of the organism to assimilate the milk fat. Removal of the fat from the food is followed by a return of the infant to the healthy state. This is the first stage, the stage of "a disturbance of the equilibrium."

If these symptoms remain unnoticed and the proper steps are not taken, the disease passes into a second phase, in which the tolerance is reduced. While a very low supply of food may not affect the infant to such a degree as to cause morbid symptoms, an amount that ought to be normal for healthy children is followed by dejections that are pathological as to quality and number, by fever, and a noticeable decrease in body weight. These are the characteristics of the "dyspeptic stage."

In the third phase, that of "decomposition," the nutritional disturbance assumes a rather serious aspect. The tolerance is reduced to almost nil. Each intake of food—first of the fat and later of carbohydrate—is followed by an immediate loss of body weight, amounting to 100 grams or more per diem. Pallor, sub-normal temperature, irregular respiration and slow pulse represent the clinical picture of the injury done to the cellular structures of the organism whose function is the dis—and assimilation of the food.

If the sugar in the food far exceeds the tolerance of the infant, the disturbance of nutrition may reach the gravest and last stage:—that of "intoxication." Enormous loss of body weight, high temperature, diarrhoea, leukocytosis, glycosuria and the most characteristic feature—somnia—prove the identity of this condition with the enterocatarrh or cholera infantum of the older nomenclature.

In order to understand the deviations from normal metabolism underlying these clinical pictures, let us now consider the causation of the most striking feature of nutritional derangement, i. e., the variations in body weight. While the weight of a nor-

mal nursling increases daily and uninterruptedly, the weight curve of an infant suffering from disturbances of nutrition presents a series of ups and downs, that in themselves point to a deranged equilibrium of the water content of the organism.

It is a well known fact, that a diet rich in saline matters, such as undiluted cow's milk, following upon a diet poor in mineral constituents—breast milk or diluted cow's milk—will cause a rise in the body weight. However, this rise is too sudden to be due to an actual increase of body substance; it can only be explained by assuming that a certain amount of water is retained in the tissues. Accordingly we find the corresponding relation between the quantity of urine and the variation in body weight; the greater the increase in weight, the less the excretion of water through the kidneys and vice versa. After a few days this sudden rise of body weight ceases and the weight remains as stationary as before. The opposite effects may be attained by substituting a salt free diet for a diet rich in salts.

We may say, therefore, that the chief symptoms of a "disturbed equilibrium" and of "decomposition" are caused by retention of water alternating with increased elimination; that the regular weight curve of the healthy infant is replaced by an irregular and erratic curve. Clinical observation teaches that, unless the injurious factor—the fat—is eliminated from the food, there will be no permanent increase in body weight.

Why the fat should prove to be such a disturbing element in the water economy of the organism will be understood by a closer study of the mineral metabolism. We know through experiments of Steinitz⁵ that the ammonia coefficient of the urine of infants suffering from gastro-intestinal affections will show a sudden rise if the fat content of the food be increased. While in some cases this may be an expression of greater elimination of organic acids, the phenomenon is largely due to a disturbance of the mineral metabolism, i. e., a greater elimination of alkalies and alkali earths through the feces; and as bases are necessary for the neutralization of the acids, ammonia derived from the inter-

⁵Steinitz, F. *Versuche mit kunstlicher Ernährung I.* D., Breslau, 1900.

mediary metabolism will be utilized in that direction. Hence the higher coefficient. This sign must, therefore, be considered as indicating a disturbance of the mineral metabolism on the part of the ingested fat. We know from clinical observation, that the stools of infants affected with disturbances of nutrition often appear white and of a hard and brittle consistency. This is due to the presence of large masses of soaps, in the formation of which, alkalies and alkali earths are necessary parts. Thus an abnormally large amount of bases is retained in and excreted through the feces.

The impaired absorption of the mineral salts in the disturbed organism of the infant; the consequent unavailability of the salts for the neutralization of the acids formed in metabolism; the loss of water, their natural solvent, through the urine, which accounts for the sudden drop in body weight; together with the increased ammonia output, are the natural outcome of the pathogenic action of the ingested fat on the disarranged nutritive organs of the sick infant.

Further mention may be made of the influence of fat on the excretion of phosphorus through the kidneys and the intestinal canal, promoted in the first case but diminished in the latter. The behavior of the alkali earths in the alimentary canal as stated above affords a satisfactory explanation of these facts. As they are used in the formation of the soapy stools, the phosphoric acid held in the soluble state through combination with the available bases will enter the circulation and thus be eliminated in the urine in greater amount. This fact will also contribute to the increase of the ammonia coefficient.

Similar to the injurious action of the fat is the influence of an excess of carbohydrates in the food upon the organism of an infant suffering from more aggravated forms of intestinal disturbances. While a great excess of these food constituents may give rise to the symptom complex of intoxication, as described before, a moderate excess will show interference with the normal daily increase of body weight. In investigating the course of

this phenomenon Birk⁶ and Rothberg⁷ arrived at the conclusion that the presence of an excess of carbohydrates in the alimentary canal promoted the formation of fatty acids of the lower series, which by combining with the alkalies and alkali earths demineralize the organism. Thus a parallelism between the action of fat and carbohydrates is established.

Led by the investigations before mentioned, if we endeavor to systematically connect cause and effect in the nutritional derangements of the infant, we must first consider the phase of the "disturbed equilibrium." An excess of fat in the food is the *causa movens*. The gradually weakened organism is unable to completely assimilate the fat, and soaps are formed in the alimentary canal. This occurrence reduces the amount of soluble mineral salts necessary for the production of new body substance, and causes the retardation of the normal increase of weight.

Removal of the offending food constituent—the fat—is naturally followed by a complete restitution. The retention of the inorganic salts will cause a steady increase of body weight; the infant begins to thrive and the disappearance of a "disturbance of equilibrium" is indicative of the return to normal conditions.

The more serious phase of "decomposition" presents the same etiological correlations as the first stage, though in a more pronounced and aggravated form. Elevations of the weight curve alternate with depressions, phenomena caused by a greater interference with the mineral metabolism. Close attention to the composition of the food in the direction above mentioned will frequently have the desired results. As the excess of fat in the food and the consequent lack of inorganic salts available for metabolic purposes are the factors to be eliminated, we can understand why the otherwise ideal food of the infant, mother's milk, fails to show its curative action in these cases. We need only remember the lower salt content of human milk and its richness in fat, in order to find the modification suitable for this morbid condition. If the whey of mother's milk or even of cow's

⁶ Birk, W. *Jahrbuch für Kinderheilkunde* LXVI, 1907, p. 300.

⁷ Rothberg, O. *Jahrbuch für Kinderheilkunde*, 1907, p. 69.

milk is administered, the objectionable features are eliminated and a *restitutio ad integrum* will be the result.

Further observations showed that other clinical symptoms, such as the slow pulse rate and subnormal temperature so frequently met with in this condition may also be due to disturbances in the salt metabolism. A⁸ salt free diet lowers the body temperature, which again rises to the normal as soon as the proper amount of mineral constituents has been supplied. J. Loeb⁹ demonstrated the dependence of normal heart action on the concentration of the inorganic salts and their equilibrium in the surrounding medium.

The relation of the most serious form of nutritional disturbance, the "intoxication," to an impaired mineral equilibrium has not been conclusively demonstrated. But the presence of large amounts of the simpler fatty acids suggests the likelihood that similar conditions prevail. These may be aggravated by the real acidosis arising from the insufficient assimilation of carbohydrates, which is the characteristic feature of this affection.

However complicated may be the relation of cause and effect in nutritional disturbances of the infant, a step has been made in the right direction through investigation of the relationships of the inorganic salts.

⁸Finkelstein.

⁹J. Loeb.

OVARIAN CYSTS IN CHILDHOOD.

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Ovarian tumors occur not uncommonly in childhood, being rare in infancy however, but more frequent as puberty approaches.

These tumors are, as in adults, either cystic or solid. The cystic tumors are divided into unilocular cysts, multilocular cysts or cystadenomas and dermoids.

The solid tumors are sarcomas or carcinomas. Of all these classes the multilocular cysts or cystadenomas are most frequent.

The most complete article on this subject is one by Howard Kelly in Keating's Cyclopaedia of Diseases of Children. He collected reports of 126 cases of ovarian tumors in children of which 55 were cysts, 47 were dermoids and 24 were solid.

Of the 55 cystic cases operated upon, 4 died, a mortality of $7\frac{1}{3}\%$. The youngest case reported occurred in an infant 4 months old. The next two in point of age were 3 years and 4 years respectively.

The largest tumor was reported by W. W. Keen in a girl of 15 years who had had it for two years and had been aspirated twice and 84 lbs. of fluid removed. At the operation a multilocular cyst was found, which weighed with the fluid 111 lbs. The patient recovered.

In the diagnosis of ovarian cysts, they must be differentiated from dermoid and sarcoma of the ovary; from peritonitis with effusion which may be encapsulated; from malignant and cystic disease of the kidney; and from atypical and retroperitoneal affections.

The case here reported occurred in a girl of 16 who had been previously healthy except for a rather persistent bronchitis and cough six months before. She had menstruated regularly for two years and nothing abnormal was observed in this regard.

I saw her first Sept. 30, 1908 when she had noticed the growth in the abdomen for about two months. She had been advised by some one that she had an enlarged spleen and had received some X-ray treatments with no result. She had no fever and few symptoms referable to the tumor except some discomfort and occasional pain.

A physical examination showed a large tumor occupying the left half of the abdomen extending from the lower border of the ribs down into the pelvis and from the umbilicus around to the left flank.

The lower portion also extended beyond the middle line and into the right iliac region. The tumor was more or less regular in outline and felt as though it were solid or semi-solid. The upper border could be easily made out not connected with the spleen.

A vaginal examination found the tumor partly filling the pelvis with the uterus normal in size but pushed downward and backward. A blood examination was negative.

The diagnosis previous to operation was either a tumor of one of the pelvic organs or a sacculated tuberculous peritonitis. This latter was thought of on account of the previous bronchitis although there was no tuberculosis in the family.

Operation was done Oct. 10, 1908, by Dr. S. C. Plummer at St. Luke's Hospital. When the abdomen was opened, the tumor at once presented and was found to be cystic and not adherent.

Enough of its fluid was drawn off so it could be delivered through a long incision. It was found to be the left ovary and the pedicle was ligated and the tumor removed. The other ovary was normal.

The abdomen was closed and the patient made an uneventful and quick recovery. She is at this writing, well as ever and attending school again.

The tumor with the fluid weighed $9\frac{1}{2}$ lbs. The pathologists report was that it was a papillary cystadenoma of the ovary.

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HYDRONEPHROSIS IN THE INFANT WITH REPORT OF CASE.

BY C. G. GRULEE, M. D.

Among the rarer conditions which we encounter in infancy is hydronephrosis. A condition whose symptoms are often very vague and whose diagnosis is frequently extremely difficult or even, with our present knowledge, impossible. The recognition of this pathological condition is, however, at times necessary if we wish to save the lives of our little patients, and therefore anything which may lead to a clearer definition of its clinical picture is of importance.

In a recent article Gardiner suggests that the term hydronephrosis be limited to those cases where the renal or reno-pelvic distention is a disease in itself and not a secondary or accessory phenomenon. In the infant as in the adult hydronephrosis may be due to the presence of some congenital anomaly or to an acquired condition. But in infancy the former is so much more frequent that we are inclined to forget that in certain rare instances the latter exists. The congenital form is much more likely to be incurable, hence the advantages of differentiating the causes underlying the condition.

Most writers agree that a complete and permanent occlusion of the ureter is much more likely to produce an atrophy of the corresponding kidney than a distention of the pelvis. And yet many cases of hydronephrosis are on record in which the ureter has been completely occluded for part or all of its extent.

Veau's classification of the causes of congenital hydronephrosis as quoted from Chevrier is quite complete.

I. Malformations of the ureteral canal.

- A. Absence.
- B. Atresia.
- C. Constriction.
- D. Valve formation.

- II. Compression of the ureter from without.
- III. Anomalies of the insertion of the ureter.
 - A. Into intestine.
 - B. Into urinary apparatus.
 - 1. Bladder (at very acute angle).
 - 2. Urethra and prostate (male).
 - 3. Urethra and vestibule (female).
 - C. Into genital organs.
 - 1. Fallopian tubes.
 - 2. Uterus.
 - 3. Vagina.
 - 4. Gartner's duct.
 - D. Monstrosities.
- IV. Anomalies of the urethra.
 - A. Atresia.
 - B. Constriction.
 - C. Phimosis.

Ayrer states that where the ureter alone is involved, in nearly all cases only one is affected and the anomaly occurs far more frequently in the male.

Absence of the ureter is a very rare condition and when recognized is usually accompanied by other congenital anomalies which are incompatible with life. Atresia may be for all or only part of the entire length. This, like the anomaly just mentioned, is very rare. Atresia of the lower portion is that most frequently encountered, (Delestre & Haret, Riesman) but Minucci mentions that atresia of the upper portion does occur. Constriction due to narrowing of the wall is much more frequent than either of the preceding. This occurs most often at the point of insertion of the ureter into the bladder (Pehu, Martin, Schwarz, Rabot and Bertier) but also is encountered at the narrowing of the pelvis to form the ureter. (Schwarz). Valve formation is rather frequently given as the cause of the obstruction. The most frequent location of the valve is at the pelvic extremity, (Minucci) but there may be several valves distributed along the ureter (Blackwood). Riesman's case suggests that at times torsion may be a determining factor. Eppinger states that in all cases of con-

genital hydronephrosis which he found in adults the ureter was lengthened and reports a case which he regards as due to its angulation.

A cause not previously noted is that of the double ureter in which one of the two is inserted into the bladder at a very acute angle and causes a dilatation of the portion of the renal pelvis which it drains (Schwarz).

Of the congenital hydronephrosis due to compression of the ureter from without the one most frequently noted is that in which the renal artery passes in front. Runge reports an interesting case of compression in which the sigmoid flexure distended with meconium pressed on the left ureter and left side of the bladder causing a hydronephrosis with dystocia and still-birth.

Anomalies of insertion of the ureter are extremely rare and usually are only a small part of a gross anomaly. Their further consideration is therefore of little practical importance. An exception may be made if we regard an insertion into the bladder at an abnormally oblique angle as coming under this head. This anomaly is relatively frequent and may as previously stated occur in one of the ureters in a case of double ureter.

Anomalies of the urethra causing hydronephrosis are relatively frequent. In these cases the hydronephrosis is double and the bladder distended and hypertrophied. Constriction and phimosis (Ventura) are the common causes, but Fuchs has reported 5 cases of valve formation in the prostatic portion of the urethra and believes that the valves are due to an hypertrophy of the normal strictures.

There are, too, cases of so-called congenital hydronephrosis in which no obstruction to the outflow of the urine in any part of the canal can be found. (Courvelain, Bryant & White). The presence of the hydronephrosis is therefore very hard to explain if we are to regard it as congenital.

Of the acquired variety, although Ayres speaks of such conditions as echinococcus cysts in the ureter and pressure of a tumor or connective tissue band, the only two causes of any importance are trauma and calculi. The former is rare and the hydronephrosis in this instance probably results from the obstruc-

tion caused by a blood coagulum. (Froehlich). Holt states that renal calculi in the form of sand are very frequently found in the pelvis of the infant's kidney. He mentions only the uric acid variety. He states that larger stones are very rare and makes no mention of the hydronephrosis as a complication of their presence. In the St. Stephanie Kinderspital in Budapest which is under the direction of v. Boksay there are some 50 specimens of vesical calculi ranging in size from a pea to a walnut, all of which had been removed in the year 1907. All these facts go to show that a calculus in the urinary tract of the child is not as infrequent as we might expect. Comby believed that in infants and children uratic dust and calculi might cause hydronephrosis (Riesman). Bernard has reported 4 cases of hydronephrosis in infants in which uratic dust was found in the urine and believes this to have been the cause of the hydronephrosis. He also thinks that lithiasis in the child may explain some of the previously unexplainable cases of hydronephrosis in the adult and states that the presence of the uric acid sand is due to gastro-enteritis. Hydronephrosis caused by a renal calculus so far as we can see at present should not differ in the infant from that in the adult.

The first indication which we have of any existing hydronephrosis may be when there is dystocia due to the large abdomen of the fetus. Such cases have been reported by Blackwood, Courvelain and Runge. The child is practically always still-born or dies soon after birth. The thing which first calls our attention to the condition in the living child is nearly always the presence of an abdominal tumor. This may remain the same size, increase or come and go, due to the evacuation and refilling of the hydronephrosis. The mass, usually painless, fluctuates, is dull on deep percussion and frequently firmer externally than internally. The tumor is in the lumbar region, lies behind and external to the colon and at times is palpable rectally. Pressure symptoms such as vomiting and diarrhoea or dyspnoea may develop. Where a renal or vesical calculus is the cause there may be severe pain, but this is hardly to be differentiated from the pain of an intestinal colic. Secondary infection with resulting pyonephrosis will give symptoms which may call our attention

more definitely to the kidney. Puncture of the mass will give urine which may be more or less changed according to the length of time that it remains in the pelvis of the kidney.

Diagnosis is only possible in infancy where a tumor is present. Sudden fluctuations in weight in an infant under careful observation where a small abdominal tumor exists would seem to be suggestive. The presence of an apparent colic, and subsequent passage of calculus, if there is a mass in the abdomen should lead one to, at least, consider the presence of a hydronephrosis. Cystoscopy and ureteral catheterization are out of the question.

Chevrier states that in the first two years of life it is rare for a congenital hydronephrosis to be the cause of death. The most serious complication is infection which usually ends fatally.

Treatment is surgical, the majority of evidence being in favor of nephrectomy where only one kidney is involved. This has met with greater success than one would expect. Of 10 cases which I was able to collect from the literature, ranging in age from 6 months to 9 years, 8 of which were executed through the lumbar region and two abdominally, there was only one death (a lumbar nephrectomy). Engler reported 1 case of nephrectomy for congenital hydronephrosis in a child and collected 9 other cases from the literature. The result, 8 recoveries and 2 deaths, is very encouraging.

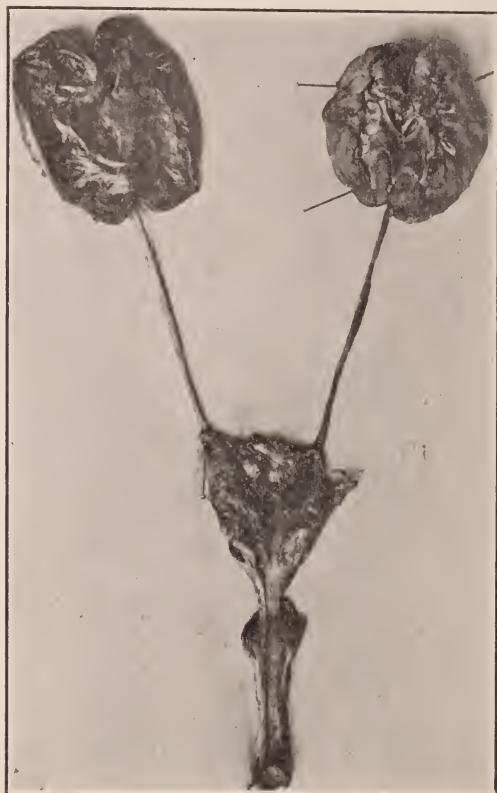
The following case seemed of interest to me because of its rarity but also because of several new symptoms which suggest themselves and my failure to interpret them in the proper way.

Baby Theodore F., 6 weeks old, entered Provident Hospital, February 1st, 1908. He came of healthy parents and was the eleventh child. Of the other children only two were alive, the other eight having died in infancy. He weighed only 4 lbs. at birth, so was probably premature. From birth on he had been fed on condensed milk during the day and breast at night, and had been troubled with vomiting and diarrhoea continuously. Aside from a slight rash about buttocks and rawness over scrotum the physical examination showed nothing but a very emaciated infant. Weight, 6 lbs., 13 oz. The vomiting continued during most of

his stay in the hospital, the bowels however early showed a tendency to constipation with occasional attacks of diarrhoea. During this time, although the abdomen seemed abnormally large at times, repeated examination revealed no tumor of any sort. The baby though ordinarily very happy and playful would have crying spells which suggested the presence of a severe intestinal colic. At one time the nurse brought a diaper to me on which was some fine white sand which she informed me had been passed during urination. I took little notice of this, thinking that probably the lumps had gotten there from some external source but told her to report to me anything further of the same sort. As I heard no more of this I conclude that no more sand was found. The case followed the usual course of a marasmus with intestinal disturbance and left the hospital April 27, 1908, weighing practically the same as at entrance. I continued to see the child about once a week at the South Side Dispensary. Between the 1st of May and the 5th of July the child gained steadily in weight from 6 lbs. to 9 lbs., 7 oz. At one time the mother called my attention to the fact that the baby's abdomen was large, and stated that she thought she could feel a lump on the right side. On examination an indefinite mass was felt just below the ribs in the right flank, and she was instructed to return with the child in a few days. She did so but the tumor had disappeared and I was at a loss to account for its fleeting character.

On the 19th of July the child suddenly developed a severe diarrhoea and was put into Wesley Hospital where he stayed until his death at noon August 5th. During this time he had a severe gastro-enteritis with some fever. On August 4th the child became rapidly worse, vomiting everything and going into a state of collapse. One of the remarkable things about the case was the length of time during which the child was in a dying condition. At 7 A. M. when the night nurse went off duty she reported the child as practically dead, but he did not cease breathing until 1 P. M. In the meantime I saw the infant. His skin was cold and clammy and of a grayish yellow hue, the breathing was very slow and labored and the whole picture led me to suspect that death was due to some cause other than simple marasmus.

The autopsy was held that afternoon and revealed nothing but the condition in the genito-urinary organs. The bladder contained about 2 oz. of urine, was much distended and hypertrophied. On pressure it was impossible at first to empty it because of a tight prepuce. When this was loosened the urine flowed readily. The ureters were normal in size from the pelvis



to the vesical opening. The right kidney showed a widely dilated pelvis which contained urine and at its ureteral extremity showed a few white sand-like calculi which were examined for me by Mr. Johnson of the Northwestern University Medical School Chemical Laboratories and were found to be composed of phosphates. The left kidney showed a slight dilatation of the pelvis. After the removal of the calculi urine passed freely through the right ureter, there was no obstruction present in the left. The

urine found in the bladder was examined but contained only an occasional pus cell.

On three occasions the sudden changes in weight were such as to suggest a sudden loss due to some cause for which the clinical picture did not offer adequate explanation. On April 15th the weight was 6 lbs., 13 oz., on the 19th, 6 lbs., 5 oz., and on the 20th, 6 lbs., 14 oz. On the 5th of July the weight was 9 lbs., 7 oz., on the 13th, 8 lbs., 11 oz., and on the 15th, 9 lbs., 4 oz. On the 29th of July, 7 lbs., 8½ oz., on the 30th, 7 lbs. 4 oz., and on the 31st, 7 lbs., 10 oz.

During its stay in both Provident and Wesley Hospitals the history sheets show frequent urinations.

We have here a case of hydronephrosis, double, larger in the right than on the left side. Although there was present a phimosis, tight enough to cause distention and hypertrophy of the bladder this was not sufficient to cause a secondary distention of the ureters. In all probability the hydronephrosis was due to the presence of the phosphatic sand in the pelvis of the kidney which though not large enough to cause complete occlusion at least could set up enough irritation to bring about a contraction of the ureter with temporary distention of the pelvis. As an evidence that this factor had been at work we may mention the attacks of crying without apparent cause, the presence and then disappearance of the abdominal tumor, the sand found on the diaper after urination and the sudden changes in weight which occurred on these occasions. Death in all probability was due to uremia.

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BIBLIOGRAPHY.

- Ausset et Chatelain.—*Echo méd. du Nord*, Lille, 1898, II, 321.
 Ayres.—*Göttingen*, 1891.
 Bernard.—*Arch de méd. d. enf.*, Par., 1898, I, 343.
 Bidder.—*Berl. klin. Wchnschr.*, 1885, XXII, 118-120.
 Blackwood.—*Edinb. M. J.*, 1895-6, XLI, 919-921.
 Broca & Lesne.—*Bull. soc. de péd. de Par.*, 1905, VII, 287-297.
 Bryant & White.—*Guy's Hosp. Rep.*, Lond., 1901, 17-28.
 Chevrier.—*Thèse de Paris*, 1899.
 Courvelain.—*Bull. et mem. de la Soc. anat. de Par.*, 1900, 6e s, II, 287.
 Delastre & Haret.—*Bull. et mem. soc. anat. de Par.*, 1900, LXXV, 1069.

- Engler.—Inaug. Diss., Kiel, 1900.
Eppinger.—Mitth. d. Ver. d. Aerzete im Steiermark, Graz., 1893.
XXX, 63-72.
Erdmann.—Ann. Surg., 1906, XLIII, 929.
Froeblich.—Rev. méd. de l'est, Nancy, 1905, XXXVII, 274-276.
Fuchs.—Inaug. Diss., Zurich, 1900.
Gardiner.—Ann. of Surg., 1908, XLVIII, 575-605.
Launay.—Bull. soc. anat. de Par., 1894, LXIX, 892-900.
Martin.—Rev. de chir., Par., 1895, XV, 324-332.
Minucci.—Bari, 1899. (Reprint from Puglia med.)
Pehu.—Lyon méd., 1905, CIV, 801.
Rabot & Bertier.—Lyon méd., 1904, CII, 869-885.
Reinach.—Jahr. f. Kinderheilk., 1903, LVIII, 260-275.
Riesman.—Proc. Path. Soc. Phila., 1897—8, N. S. I, 253-260.
Runge.—Inaug. Diss., Kiel, 1895.
Schwarz.—Inaug. Diss., Kiel, 1891.
Seiffert.—Jahr. f. Kinderheilk., 1898, XLVIII, 17-19.
Shirlaw.—Brit. M. J., 1901, II, 1462.
Simpson.—Glasgow M. J., 1867-8, 3. s. II, 332-342.
Ventura.—ref. Jahr. f. Kinderheilk., 1908, LXVIII, 506.

BRIEF REPORT OF TWENTY CASES OF STAPHYLO- COCCUS INFECTION TREATED WITH KILLED BACTERIA.

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The efficacy of the so-called opsonic treatment of certain diseases is by this time well known, and needs no special defense or description; its application to diseases of children, however, has so far been limited.

Various experimenters have shown the efficacy of subcutaneous inoculation of killed bacteria for certain systemic diseases of children and adults, and in the past year several have recorded encouraging results in furunculosis, acne, sycosis, and other skin diseases having an apparent systemic origin.

Whitfield (1), Harris (2) and Wells (3), report such treatment of such cases; Whitfield describes the treatment of skin diseases by inoculation after the opsonic method, and while making a clinical classification into primary diseases (such as boils, carbuncles, sycosis), and secondary, (such as acne, chronic septic eczema, and septic ulcers), declares that he obtained amelioration, in a considerable number of the primary affections; in his hands no treatment of furunculosis prior to the introduction of the Wright vaccine therapy had ever produced the slightest results. In all cases treated there was complete and durable success; in no case was it found necessary to give over eight inoculations, i. e., a treatment lasting about twelve weeks.

Harris (2), says a staphylococcic boil usually yields at once to bacterial inoculation, and that in most staphylococcic infections a common stock vaccine will suffice, but that it occasionally happens that it is necessary to make a specific vaccine from the par-

ticular infecting organism. He gives 100-1000 million every ten days.

Turton (4), says he gives usually 200-1000 millions,—the smaller doses for acute cases, every 5-10 days, the larger for the chronic cases, every 12-21 days. He advocates surgical removal of pus, and the use of autogenous vaccine, but does not believe the taking of the opsonic index is necessary; he reports fifteen cases, none of them in children.

Fordyce (5) never takes the opsonic index, uses invariably stock vaccines of aureus, albus, and citreus, and finds them most useful in general furunculosis; his initial doses for a six months' child were 50 million, for a ten year child 100 million.

Illman (6) and Duncan report that they used Staph. Pyog. Aureus in doses of 5-10 billion, usually buying stock vaccine of the two large drug companies now marketing it; when this failed, they used the autogenous.

Kelly (7) believes the doses generally too large, and prefers 10-20 million even for adults; he notes that the opsonic index follows the clinical manifestations. He also administers the emulsions by the mouth and reports that cases so treated showed the same indices and results.

Matthews (8) says he prefers to follow up the treatment with the opsonic index, but can go by the clinical symptoms; he gives succeeding doses according to clinical behavior—smaller if worse, larger if better or if not improved.

The object of this paper is not so much to present anything new or novel in opsonic therapy as to record some observations on its application to bacterial infections in infancy and childhood. The majority of the cases were furunculosis in children whose ages ranged from 2 months up to 7 years, the remaining cases were staphylococcic infections of various sorts and in each case the staphylococcus was isolated before beginning the treatment.

The stubborn character of furunculosis in babyhood is too well known to warrant description here—as well as the lack of a satisfactory treatment, occurring most frequently in ill-

nourished and marantic children who live in more or less unhygienic surroundings. It seems at times to resist all attempts at cure. In my series of cases no medical treatment was used and only in the worse cases surgical evacuation and dressing. Ten of the cases were treated at the Daily News Fresh Air Sanitarium at Lincoln Park, and received on an average two inoculations each, six were at the Cook County Hospital receiving an average of three inoculations, two at the Presbyterian Hospital, getting one inoculation each, and two at the Children's Memorial Hospital, getting two inoculations each.

In my series of cases the opsonic index was not followed at all except for a brief time in two of the cases; these proved of little interest and showed no interesting phases. The remaining treatments were given independent of index and followed only the clinical manifestations.

TECHNIQUE: In each case the staphylococcus was isolated before treatment was instituted; the Bacterial Emulsion was made as follows: A 24 hour growth of the pure culture on plain slant agar was washed with about three c.c. of sterile normal salt solution—the emulsion being thoroughly mixed by alternately drawing in and blowing out the fluid in the capillary tube; a small portion of it was removed for the “standardizing” and the rest placed in a water-bath and kept at 65° C. for one hour. Meanwhile the number of cocci per c. c. was estimated, usually by the Wright method of standardization, but occasionally by counting the cocci in a Thoma-Zeiss red-blood counter—a drop of methylene blue solution added to the Toisson solution in a watch glass being sufficient to stain the cocci.

After removing the tube of bacterial emulsion from the water-bath a loopful of it was removed and used to inoculate a tube of plain slant agar; this was placed in the incubator and remained there twenty-four hours at 37 degrees C., to prove the sterility of the emulsion. If no growth appeared the emulsion was believed sterile enough for subcutaneous inoculation, using the same amount of salt solution each time and about the same sized stroke on the agar produced fairly constant quantities

of bacteria per c. c.—and usually 1-2—1 c. c. would give a dosage of about 50-100 million, any dilutions to required amount being easy. Inoculations were made into the loose flesh of the buttock or thigh.

With respect to local inflammatory reaction after inoculation, the records are not absolutely satisfactory; e. g., about half the hospital cases were observed to have a slight rise of temperature and a general malaise for a day or two subsequent to inoculation:—all the cases kept at home were reported as showing absolutely no injurious effects, but these reports were necessarily from inexperienced observers.

A careful study of the usage of stock vaccines in comparison with autogenous, in these cases shows little difference in their behavior; of five cases treated with autogenous vaccine all were cured; of fifteen treated with stock vaccine 75% were cured. This coincides with the observation of other workers and it is possible that the vaccine furnished by merchantile laboratories would in most cases be of value.

A few typical case reports follow:

(1) Frank Z., 16 mos. old, admitted to the service of Dr. I. A. Abt at the County Hospital with double otitis media, marasmus, and rachitis May 19; June 3 developed general furunculosis and was treated with local applications for two months with no improvement; Aug. 8 received an inoculation of 250 million staph. (autogenous). Aug. 13 the same dosage, Aug. 19 had one boil in the axilla; Aug. 28, 500 million, had two boils on the head; Sept. 9 two small boils on the head; no further recurrence.

Case 2. Fay Mc. G. six months old, service of Dr. Abt of the C. C. hospital admitted June 17, as a feeding case; marantic; multiple furuncles; June 20 inoc. 34 million staph. (autogenous).

June 27, 34 million.

July 6, 30 million.

July 8, cured; no recurrence.

Case 3. Rosario de F., admitted Lincoln Park Sanitarium, Aug. 6 with enteritis; one year old, Aug. 8 developed general furunculosis and received inoc. of 100 million; on the 13th the

boils had disappeared and in November the report was "no recurrence."

Case 4. Sam A., Jewish boy about eight years, admitted into the Lincoln Park Sanitarium Aug. 13 with several large boils on the head.

Aug. 13 250 million stock vaccine

Aug. 19 250 million stock vaccine; no better.

Aug. 24 no inoc. much worse

Aug. 28 500 million stock vaccine no better

Nov. 18 Mother reports that the boils did not disappear for a month. Comment: This was evidently a case which was not benefited by treatment.

Case 5. Sanford G., age 23 months, admitted Aug. 21, Lincoln Park Sanitarium with a history of multiple furuncles on the head:

Aug. 21 250 million stock vaccine

Oct. 1 Mother reports that the head healed in a few days; no recurrence.

Several cases resembling this last one were treated at the Daily News Sanitarium, the majority receiving two injections and then ceasing to return; upon looking them up at their home addresses I found generally that the report was of an apparent cure within a week of the last inoculation.

In general, a small dose, such as 30 million was given at first and later ones up to 100; in some older children, however, I started with 250 million and went up to 500 million.

With regard to the opsonic index of infants, Wells (3), reports that he took the opsonic index on healthy breast fed babies up to one year of age for tubercle bacilli, staph., and strop., and b. coli. The average index to staphyl., of eleven *new born* babies, the blood being taken from the umbilicus, under aseptic precautions, was 0.9, at one week was 1.08, at two weeks was 0.68, at four weeks was 0.25.

He concludes that: first, a low index is not diagnostic in children under one year of age; second, in infants a low index is not inconsistent with good health and children may thrive well with a declining index; third, while the opsonic index is low

it will rise in response to stimulation by inoculation with bacterial vaccine; fourth, apparently the healthy breast fed infant has no advantage over the healthy artificially fed infant; fifth, the anti-bacterial defense of children does not depend upon the opsonic index of the serum.

In conclusion, I wish to express my thanks to the staffs of the Cook County Hospital, Presbyterian Hospital, Children's Memorial Hospital, and the Daily News Sanitarium for courtesies received.

The laboratory facilities for this work were afforded by the Memorial Institute for Infectious Diseases.

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REFERENCES.

1. Arthur Whitfield, Pract. Lond. '08, p. 697.
2. A. Butler Harris, *Ibid.*, p. 657.
3. J. H. Wells, *Ibid.*, p. 635.
4. E. Turton, Internat. Clinics '08, S 18, 11.
5. A. D. Fordyce, *Ibid.*, 1, p. 40.
6. G. M. Illman and H. A. Duncan, N. Y. Med. Jour., June, '08.
7. B. C. Kelley, Brit. Med. Jour., '08, p. 1150.
8. John Matthews, Lancet, '08, p. 925.
9. Arthur Whitfield, Jour. Cutaneous Dis., '07, XXV., p. 529.

ACUTE HYDRONEPHROSIS IN A CASE OF HORSE SHOE KIDNEY.

BY DR. JULIUS HESS.

Ben Levy; age 6½ years. 7-20-8 to 8-19-8. Hydronephrosis.

Personal history—healthy as an infant; father does not know details of child's history.

7-20. Present trouble—Two weeks ago child began to complain of pain in the right inguinal region; pain seemed severe. Child cried a great deal and complained of stitching pain, localized, never radiating. Child vomited several times; father does not think that child had fever. Child was very sick for 24 hours. Patient had a similar attack once before this but was apparently well after this until last night, 7-19, when patient cried and complained of severe pain in right side. Vomited 7 or 8 times during the night; had one bowel movement; father thinks that child had fever. This morning child was considerably better.

Previous illnesses—measles at five; scarlet fever in C. C. hospital one year ago. Operation on legs (?) in M. R. hospital.

Patient entered hospital on July 20, 1908. Temp. 99-8; pulse 136; W. B. C. 12,200. Temp. ranged between this and 97-6 and pulse between 120 and 136 until July 24, fourth day after entering, when child complained of pain in lower right abdomen. Low pressure enema was given with small result. Child continued to complain of pain in abdomen and vomited considerable green watery fluid and at 1 P. M., 8 hours after first onset of pain was taken to the operating room. On this day, July 24, the W. B. C. were as follows: 9 A. M. 11,900; 10.30 A. M. 12,300; 11.30 A. M. 16,000; 12.40 P. M. 20,700; 4.30 P. M. 17,300.

Physical examination—Well nourished boy of 6 years. Lies quietly, no evidence of distress; breathing quiet and normal.

Head and neck—normal shape of head; tongue coated; breath a little foul; glands of neck palpable. Chest—Shape normal; heart—normal. Lungs—normal. Abdomen—soft; no rigidity; no pain over right inguinal region on pressure. Mass on palpation. Spleen not palpable. Rectal examination—negative. Extremities—negative.

Operation—7-24-8. Patient scrubbed with green soap, alcohol and ether and wet dressing applied. Incision in border right rectus muscle, 4 inches in length; skin and fascia incised. Muscle incised, peritoneum cut between forceps; wound edges retracted. Laparotomy sponges inserted. Pathology—small amount * free serofibrinous fluid in abdominal cavity. Appendix normal. Bowel slightly injected. Kidney large, soft horse shoe shaped; right kidney cystic, full of a straw colored transudate. Left kidney larger than normal, soft, not cystic. Operation—kidney brought into wound and peritoneal edges sutured to surface; shutting off completely the general abdominal cavity. Peritoneum and surface of cystic kidney incised, allowing escape of large amount of sero-fibrinous clear non-odorless fluid. Drainage tube inserted. Large amount plain gauze packed into kidney; wound closed around drain by interrupted catgut for deeper stitches, silk worm gut for skin; large dry dressing.

On account of collapse of patient the operation was postponed until 6 P. M. Following the operation normal saline and general stimulation was started because of the extreme condition of the patient. The highest temp. previous being 99-6; pulse 136. After operation the temp. rose to 100-4 and pulse to 200. Following day the temp. ranged from 99-8 to 101-4; pulse 168 to 128. Child remained very restless and suffered a great deal of pain. W. B. C. rose to 22,300. On the third day following operation temp. dropped to 98-6 and pulse to 96; W. B. C. dropped to 10,900. From this time on patient remained about the same and he made an uneventful recovery, leaving the hospital on the 25th day after entrance.

5501 Indiana Ave.

DIARRHEAL DISEASES IN COLORADO.

BY GEO. H. CATTERMOLLE, BOULDER, COLO.

During a residence of ten years on the plateau east of the Rocky Mountains, I have been impressed with the low mortality from summer diarrheas in this region. True cholera infantum is almost unknown here; I have only seen one case of this disease in Colorado.

Ordinary cases of indigestion from overfeeding occur here the same as in other regions, but if they are followed by diarrhea it is usually a form easy to control.

Probably this immunity from severe diarrheal diseases in Colorado is due chiefly to the low temperature at night. It seems that for cholera infantum to prevail a minimum temperature of 60° is required, while ours is 51° for June, 56° for July, and 58° for August. Our midday temperature is high (average maximum, 83° for July) so that the mean temperature for July is about 70° , but the nights are cool and this not only retards putrefactive changes in food, but makes it possible for children to get good rest; it is a tonic summer climate. There is very little humidity here and this adds much to the comfort and well-being of the infant.

In New York and Berlin, as well as other large American and European cities, it seems necessary that a mean temperature of 61° must prevail before diarrheal diseases become epidemic. If this degree of heat were the only factor necessary to cause cholera infantum it would occur in Colorado, for, as stated above, our mean temperature is about 70° for July.

It is quite possible that the dust in this region carries fewer live bacteria than does dust in countries where there is more humidity and less sunshine. I do not know that studies have been made of bacterial contamination of milk in this state.

Another factor in this country is that people can get fresh milk, it need never be more than 24 to 36 hours old when used.

Still another condition in the infant's favor is the fact that it can stay out of doors day and night, if necessary, in this climate.

During the past summer the heat and floods in the Mississippi Valley caused a great deal of sickness there among infants; a number of these patients, who came to Colorado, were under my care. In each case the diet was regulated to suit the conditions, but a very important feature of the treatment was to keep the patient out of doors where it was quiet and cool. When the nights were hot they were kept out most of the night. We have no dew and but little rain.

Ileo-colitis is one diarrheal condition which we have here, and which is sometimes quite prevalent and severe. It does not seem to be affected by climatic conditions. The symptoms are the same here as in other parts of the world, and the cause is probably the same. It attacks families rather than communities, and for this reason appears to be due to local conditions. It occurs in the mountains as well as on the plains. The mortality in ileo-colitis is very high, between one-third and one-half of the cases prove fatal, and there is a protracted convalescence in those cases which recover.

We occasionally see cases which resemble typhoid fever in infants; such cases give an uncertain Widal reaction, the temperature is usually higher than in true typhoid; these cases are probably due to some member of the colon group.

Typhoid fever is seen here in infants, but it usually occurs when there is an epidemic of the disease, or an intense house infection, as for instance where all the members of a family are infected from the well water.

In conclusion I would say that diarrheal diseases due to putrefactive changes in the infant's food are not common here while those due to specific infection are the same here as in other regions.

A NOTE ON THE CUTANEOUS TEST FOR TUBERCULOSIS.

BY CHARLES HERRMAN, M. D.,

NEW YORK.

ATTENDING PEDIATRIST TO THE LEBANON HOSPITAL; CLINICAL
ASSISTANT IN PEDIATRICS, VANDERBILT CLINIC.

It is interesting to note how the cutaneous test for tuberculosis is gradually displacing all others. It is true that a positive reaction does not necessarily indicate the presence of an active tuberculous lesion, nor that the physical signs and the symptoms present are entirely due to a tuberculous lesion; but this test has the great advantage of simplicity, universal applicability and freedom from danger. Autopsy findings have shown that it is as trustworthy as any of these tests recently employed. In infants and young children the test is more valuable than in adults. A positive reaction is more significant because there is less likelihood that a healed tuberculous lesion is present; and such patients are less apt to have pathological changes in more than one part of the body at the same time.

Briefly summarized the objections to the various tests as employed in infants and children are as follows:

Injections of tuberculin. Somewhat painful. They can only be used in patients who have no fever. The temperature must be taken at short intervals, so that this method is practicable only in institutions. According to some they are not without danger.

The puncture ("Stitch") test. Somewhat painful. Has no special advantage over the cutaneous test, although according to Escherich it is even more sensitive.

The conjunctival test. Not without danger. It cannot be used in those cases in which the eyes are not normal, and in those in which there is a slight conjunctivitis. It requires a specially purified preparation of tuberculin. The patient must be watched during the hours following the instillation. In infants and young children the eyes may be rubbed, and the tuberculin may be

conveyed to the eye in which it has not been dropped. Doubtful reactions are not infrequent.

Inunctions of tuberculin. Requires a special preparation and is not so easily applied as the cutaneous test. The last objections would be of very little importance if the results were in any way more reliable. Experience has shown, however, that they are not.

The cutaneous method then has the following advantages: Simplicity and ease of application, freedom from danger. It requires no special preparation, ordinary crude tuberculin which is easily obtained is used. The patients need not be reexamined for 24 or 48 hours after the application. This is a great advantage in an out-patient department. If the test is made on the forearm it is not even necessary for the patient to undress, it is only necessary to draw up the sleeve. The pain caused by the scarification is so slight that infants and young children do not make any objection.

After a thorough trial I have found the following method simple and satisfactory: After cleansing the forearm, two new sewing needles are held together and dipped into the tuberculin (undiluted). A small quantity is held between the needles by capillary attraction. Two short scarifications are made at right angles, and the tuberculin adhering to the needles is rubbed in. The drop of tuberculin may be placed on the skin first, and the scarification made through it. The scarification may be covered by a small square of gauze held in place by a strip of adhesive plaster.

The use of new needles for each patient does away with a special instrument and its sterilization. Undiluted tuberculin is used. It requires no preparation and if kept in a cool place it may be used for some time. The use of two needles renders the employment of a separate applicator unnecessary. No control scarification is used. If the reaction is doubtful it is of no value. On the other hand I have never seen a control which could be mistaken for a positive reaction. The gauze covering is not indispensable, but may be used as a precautionary measure against possible infection.

250 West Eighty-Eighth Street.

NEW YORK ACADEMY OF MEDICINE.

Section on Pediatrics.

STATED MEETING, HELD JANUARY 14, 1909.

DR. ELI LONG IN THE CHAIR.

ADENOIDS IN CHILDREN.

Dr. Rowland G. Freeman said that adenoid hypertrophy in children is very frequent in New York. Indications of its presence usually make their appearance during the first year. As soon as symptoms of adenoids appeared it was important to remove the growth before mouth breathing became a habit. The earliest symptoms during the first year were snoring and snuffles, particularly noticeable at night. In another class of cases there were frequent colds, occurring from three to six weeks apart. There might be paroxysmal attacks of coughing resembling those of whooping cough.

Dr. Freeman reported the case of a child in an institution who had paroxysms of coughing resembling whooping cough. The attacks were very severe and prolonged and during them the child would become cyanotic. With the cough the child expelled any food that had been taken and was very poorly nourished and emaciated. Careful examination showed the presence of adenoids of large size and though the child was in such a desperate condition as to make the operation dangerous it was decided that it was best to risk the operation. No anesthetic was given; the operation could be done during the first year without anesthetic and without frightening the child. In young children and especially in those of lymphatic constitution anesthetics should be given very guardedly. Nitrous oxide gas was preferable. After the operation in this case the cough was almost immediately relieved, vomiting ceased, the food was retained and in less than three months the child had gained three pounds.

Dr. William P. Northrup said that Dr. Freeman had been very diligent in his search for these early cases of adenoids and had taken a great interest in them and much pleasure in the results. This endeavor to take care of the snufflers and snorers was certainly a step in advance. The operation was easy and there seemed no good excuse for not performing it. Dr. Northrup said he wondered why this early operation was not done oftener. Dr. Freeman's results had been very satisfactory.

UNUSUAL ASPECTS OF INFLUENZA.

Dr. Josephine Hemenway reported these two cases.

Case I. This child was an inmate in the Babies' hospital and she had been able to follow the case from the very beginning. The child weighed ten and one-half pounds, had never had any acute illness prior to this one and the history of the feeding was unimportant. Two days before the child was brought to the hospital the mother had noticed that the child coughed, was fretful and feverish and she was treated for an ordinary attack of bronchitis. On the sixth day otitis media developed which required an incision of both drum membranes. The case was reported on account of the temperature curve which was quite remarkable. It ranged for eleven days from 95 to 105. The child did not look unduly ill during the entire time. A pure culture from the throat showed the influenza bacillus. The ears were carefully watched and at other times it became necessary to make incisions into the drum membranes. The surgeon suspected sinus thrombosis. The child was treated by simple methods, chiefly by stimulation, and on the twenty-third day of his illness the temperature fell to normal. Seven days later the temperature again arose but soon fell to normal, and from that time the child made a good recovery. The case was apparently nothing but an attack of influenza, with a remarkable temperature curve and a complicating otitis media.

Case II. This occurred in a child in the Babies' hospital who was four years old and had acute hemorrhagic nephritis. She had been apparently well except for many attacks of bronchitis. She had never had any contagious or infectious

disease but in December last the mother noticed that she had an acute coryza, enlargement of the lymph glands and a slight cough. The temperature ranged from 101 to 103, the urine was coffee colored and there was some prostration. Careful examination revealed nothing but a slight bronchitis and a systolic murmur at the apex of the heart. The urine was scanty and blood colored, albumen and some granular casts were present and there was a specific gravity of 1030. Cultures made from the throat showed the presence of the influenza bacillus. Cultures of influenza bacillus could not be recovered from the urine. After four days the temperature gradually fell to normal and a slow recovery took place. The urine became practically clear and the child left the hospital one month after admission with an apparently normal urinary condition.

Dr. Charles Herrman, in discussing the first case said that he had not found cases of influenza with marked remissions of temperature very rare; recently he had seen some cases of this nature. If influenza was epidemic and a child presented this peculiar kind of a temperature curve, he would be strongly inclined to the diagnosis of influenza.

CASE OF BLUE BABY, CONGENITAL.

Dr. William P. Northrup presented this child, a young girl who was a neighbor of his and whom he had seen riding a tri-cycle one cold day. He noticed that she was blue and looked uncomfortable, even her fingers were blue, in fact she was almost indigo. He asked her to appear at his clinic that he might deliver a lecture on her condition and he told the class that she presented no doubt the characteristic lesion in the heart productive of this condition, in all probability a loud systolic murmur. Upon careful examination he could hear nothing abnormal and so reported to the class. The case was interesting; the girl was always blue when cold and yet without any murmur. She was always cold and blue. Her chief complaint was loss of appetite, or anorexia and coldness. She often suffered from complete exhaustion. The X-ray showed that the size of the heart was normal. Dr. Northrup said that for ten years he had been

curator at the Foundling hospital and had studied these cases from the beginning to the end. In Dr. O'Dwyer's time he had four cases under observation at the same time, one of which was of exceptional interest. He reported the case to the American Pediatric Society which was meeting in New York City at that time for diagnosis. Each diagnosis made differed from the others. In the case presented the trouble was a narrowing of the pulmonary artery and an incomplete septum ventriculorum. Twelve such cases had come under his observation. His experience had led him to believe that when a child was born blue and stayed blue, there was but one lesion present to account for the condition. This was a narrowing of the pulmonary artery, or the orifice leading to the conus arteriosus, with a narrowing of the septum ventriculorum. This agreed with Dr. Brodbent's views as well. Dr. Northrup related several cases where there was transposition of parts, cases where there was no septum between the auricles and yet no symptoms were evident. He related one case of destruction of the septum ventriculorum in which there were no symptoms. While he had this case at the clinic a case with burns was brought in which had an ideal loud systolic murmur at the second space and yet no blueness. In 99 out of 100 cases of children born blue and remaining blue after birth the cause would be found to be a narrowing of the pulmonary artery and more or less imperfection of the septum ventriculorum.

Dr. Rowland G. Freeman said that he thought that all the men who had served as pathologists at the Foundling hospital had been convinced of the wisdom of Dr. Northrup's teaching in regard to the common lesion in congenital heart cases. He had, at present, a blue baby of three months, with no murmur. In reply to a question he said that Dr. Morse of Boston reported having followed 32 cases of congenital heart defect. In several of these cases where there were murmurs they disappeared in later life. This seemed to indicate that they had recovered from the condition.

CASE OF CONGENITAL PYLORIC STENOSIS: OPERATION: DEATH.

Dr. Henry Dwight Chapin reported this case. This baby, two months old, was brought to the dispensary and a diagnosis of pyloric stenosis was made. The labor was normal and the baby breast-fed for three weeks after birth. The child had projectile vomiting which had increased. This occurred one hour after each feeding. The child had six stools a day. Physical examination showed an enlarged abdomen; peristalsis was noted over the stomach. Barley water was given and that was vomited. She was then given 3-6-I and that was vomited. Then 2-6-I but regurgitation still occurred. After a large dose of bismuth an X-ray was taken. Dr. Putnam was called in and agreed in the diagnosis of pyloric stenosis. Operation was advised and a gastro-enterostomy was done. The child lived only a few hours after the operation. The stomach was shown together with a number of slides. There was present an increase of connective tissue and infiltrating cells at the pyloric end of this organ.

Dr. Putnam said that the baby was extremely weak and anaemic at the time of operation, weighing but five and one-half pounds. They had tried for three days to feed the child in order to improve its condition but vomiting was persistent. The stomach was washed and a Heintze-Lickulitz Pyloroplasty was done before operation. The stomach was found to be much distended with gas and a tumor presented at the pylorus. Dr. Putnam said that Dr. Scudder of Boston believed in the operation of gastro-enterostomy for these cases. Dr. Nicoll of Glasgow had had success with these cases by doing a submucous pyloroplasty. The best end results were obtained as a rule when the pylorus was left as nearly normal as possible.

Dr. Dennett said that they had had three such cases during the last year and in all the peristalsis was noted as going from left to right. There was no reverse peristalsis. Tumor had not been noted at any time.

Dr. Putnam said that in the case reported the tumor was felt only when the child was under ether.

Dr. Charles Herrman said that some authors had endeavored to differentiate sharply between cases of pyloric stenosis and pyloric spasm. The case described by Dr. Chapin showed how difficult this might be as at one time the bowels were loose and no tumor was palpable until the patient was under ether at the time of the operation. The question that arose was when should they operate? Characteristic cases might get well without operation but he thought it was better to attack them early rather than to wait and take the chances of the child's getting well without operation.

Dr. Godfrey R. Pisek said that he believed that by distending the stomach by a considerable amount of pabulum and endeavoring to get some of it through the stenosed orifice some relief might be obtained. If some food could be forced through there would follow an increase in nutrition and the child's chances of life would be improved. This method might possibly be of aid in making a diagnosis.

Dr. Eli Long said that in view of the high mortality attendant upon these operations in infants, an early and exact diagnosis should be made before operation was considered.

A CASE FOR DIAGNOSIS.

Dr. Edward D. Fisher presented this case, a boy 13 years of age. The father was healthy but the mother had tuberculosis. An older brother was also ill with pulmonary tuberculosis. The boy was a premature baby, born at the seventh or eighth month. He weighed but two and one-half pounds at birth and was very feeble. After he reached the age of one month he gained flesh and strength very rapidly. He did not cut his first tooth until he was two years of age. It was at this time that he was first able to sit up alone. With each double tooth he had convulsions and he did not talk until he was five years old. With the exception of a slight attack of measles he was well until the age of seven although he was undersize and mentally deficient. At this age he had an attack of scarlet fever with convulsions and was confined to the bed for about three months. He was blind for a week after one con-

vulsion of great severity. At this time he complained of pain in the back of his head where the mother said that she could feel a protrusion and throbbing. About this time he began to pass large amounts of urine and to drink correspondingly large amounts of water. With this exception the boy remained well until last summer when he had one convulsion in the night. He was up the following morning but complained of pain in his leg. He walked unsteadily, throwing the leg outward. During the past few months he had gained in flesh and strength and walked without assistance which was an impossibility three months previously. He went to school for the first time and seemed mentally brighter. The urine was examined repeatedly but showed nothing abnormal except the large quantity passed. Examination of the eyes showed slight cloudiness of the optic discs. Nystagmus was also noted. There was also intentional tremor, spastic gait, exaggerated reflexes and a peculiar hesitating speech. He was very emotional, mentally deficient and poorly nourished. A diagnosis of cerebral diplegia was made. A possible diagnosis of multiple sclerosis had been suggested but while this disease did occur in children it was comparatively rare, and he had never known of a child born with that condition. Dr. Fisher thought that it was possible that cerebral diplegia, followed by an attack of scarlet fever had resulted in multiple sclerosis. The diplegia and the polyuria might be explained by the existence of a basal growth near the floor of the fourth ventricle of tubercular origin. It was interesting to observe that the child had lately developed mentally. This fact was opposed to the diagnosis of multiple sclerosis which was a progressive disease, marked by increasing mental weakness.

Dr. Alfred F. Hess said that he had seen a similar case some years ago where there was the same kind of gait, staccato speech and backward mentality. He followed the case for some time and then asked a prominent neurologist to make a diagnosis. This was done but no positive opinion regarding the nature of the disease was given. It was thought possible that the case might be one of multiple sclerosis or cerebellar ataxia

of the Marie type. The child had difficulty in walking, especially in going up stairs, and was also of premature birth.

Dr. William Van Pelt Garretson said that the patient had been seen at the Vanderbilt Clinic and that there it was concluded that the case was one of multiple sclerosis. The early history of the child was indicative of delayed development. There was a distinct pulsation, not over the posterior fontanelle as the mother said, but over the site of the torcular herophili where the bony covering was imperfect. There was some involvement of the peroneal muscles of the right leg, noted after the convulsion during the attack of scarlet fever. Since scarlet fever this boy had developed the classical picture of multiple sclerosis, which occasionally followed severe infection. Dr. Garretson enumerated the symptoms before mentioned and said that to his mind they presented the unmistakable symptom picture of multiple sclerosis. The polyuria was to be explained by the irritation of the diabetic center in the medulla by a place of sclerosis.

SOME UNUSUAL CASES OF PYURIA.

Dr. Charles Gilmore Kerley presented some charts, which he said represented a class of cases with which he had been deluged lately. He had seen sixteen or seventeen cases and in only two or three had the correct diagnosis been made. Seven of these cases had come under his observation since last June. The chief feature of the disease from a clinical standpoint was the temperature curve.

Case I. Child, Q., eleven months of age who ran a temperature of irregular course. He had been treated for malaria for two months, for typhoid fever and for other conditions. Dr. Kerley said that the patient had a temperature of 104 when he first saw him. The blood examination was negative. There was pus in the urine which disappeared under the use of urotropin, the temperature also dropped to normal and the patient made a good recovery. The pyelitis was of the colon bacillus type in this instance.

Case II. This case was an infant 14 months old, whose case was similar to the first case. In August last the child had

an acute attack of colitis and ran a temperature as high as 106. The urine was found to contain large quantities of pus, but under urotropin the pus disappeared and the temperature dropped to normal. The child had been practically well since October.

Case III. This case like the others had symptoms of intestinal infection. She was brought from the country to the city in September ill; she had mucus in her stools, which were green in color, she was prostrated and had some fever. The temperature remained normal for three days and then rose to 105 and it was found that she had pyelitis. The temperature soon became normal again and the child was bright and playful, then there was a sudden rise without any apparent cause except the condition of the urine. The temperature remained normal for about fifteen days and again arose. The pus disappeared from the urine and the temperature became normal under the administration of urotropin. All the cases had a temperature higher than would be expected with the condition of the urine and all cases recovered under the use of urotropin.

A CASE OF INFANTILE PARALYSIS INVOLVING THE MUSCLES OF THE FACE AND EXTREMITIES.

Dr. Henry W. Frauenthal reported this case which was one of a series of sixteen cases collected in the past two years. The boy had infantile paralysis at the age of fourteen months which involved both right extremities and all the muscles of the right side of the face and the right eye. The most interesting points in this case were that up to six months ago he could not close his right eye and had no vision in that eye. All the muscles on the right side of the face were paralysed. Two physicians at the Hospital for Deformities and Joint Diseases examined him and claimed that he gave positive reaction of total degeneration and that there was no hope for any improvement so that it would be a waste of time to treat the boy. Under skilled massage combined with high frequency and sinusoidal electricity he had, however, improved. He could now close his eye and distinguish objects clearly with his right eye. The case was interesting because all the text books on anterior poliomyelitis said

that if paralysis existed for six months or a year without improvement none would take place under any form of treatment and because when there was positive reaction of degeneration in paralysed muscles there could be no hope for improvement or recovery.

A CASE OF MILIARY TUBERCULOSIS DIAGNOSED BY FINDING TUBERCLE BACILLI IN THE BLOOD.

Dr. Alfred F. Hess reported this case in which the finding of the tubercle bacillus in the blood and also in the cerebro-spinal fluid enabled him to make a diagnosis. The child was three and one-half years old, one of five children. There was no hereditary disease and the child's past history was negative. He came to the hospital with the history of having had pain in the abdomen, temperature, etc., for three weeks. There was no headache or vomiting and no other symptoms. The boy seemed to be in a fair physical condition although physical examination showed some cyanosis. The temperature ranged from 101 to 104, respirations were 60 and pulse 160. Typhoid fever was thought of and the Widal reaction was tried which was negative while the diazo was positive. The blood count showed 3,000,000 red cells, 65 per cent. hemoglobin, 7,600 leucocytes and 65 per cent. polymorphonuclears. There were some rales in the chest but no positive diagnosis could be made. Blood was taken from the finger and smears were made from the sediment of the blood in which tubercular bacilli were found and then a positive diagnosis was made. A lumbar puncture was also done and 30 c.c. of the fluid was taken out. He found no tubercle bacilli were found in the omentum and in the glands. He the fluid. After twenty days the guinea pig was killed and tubercle bacilli were found in the omentum and in the glands. He later found the bacilli in the sediment of the cerebro-spinal fluid. They were not found in the sputum or in the stools. The patient was removed from the hospital and died the day following. No signs of meningitis were found.

THE CHICAGO PEDIATRIC SOCIETY.

MEETING HELD JANUARY 19, 1909.

I. A. ABT, PRESIDENT.

The papers of the evening were:

1. Ovarian Cysts in Childhood. Exhibition of Specimen, H. W. Cheney. See page 144.
2. Hydronephrosis in the Infant, with Report of Case, C. G. Grulee. See page 146.
3. Brief Report of Twenty-five Staphylococcus Infections treated Opsonically, Alex C Soper. See page 155.
4. Acute Hydronephrosis in a case of Horse Shoe Kidney, J. Hess. See page 161.

DR. BUTLER in discussing Dr. Soper's paper asserted that nothing gives more gratifying results in vaccine therapy than the staphylococcus vaccines. The practical administration of vaccines guided by the index, would, of course, be rather limited, but staphylococcus vaccines can be used, as Dr. Soper suggests, without the index, with a little judgment. Some are inclined to use enormous doses of vaccines but moderate doses give as good results. Wright always begins with small doses. Occasionally in staphylococcus infections producing boils or carbuncles, and after a large initial dose the patient may become worse but after a moderate dose of fifty to a hundred millions there is decided amelioration of the acute symptoms within a day or so. With children the results are as favorable as with adults. Stock vaccines serve the purpose very well and can be administered by any one who keeps in mind the proper dosage and proper intervals of administration (usually three to five a day in acute staphylococcus infections). Initial doses of fifty to one hundred million produce satisfactory results.

It is true that sometimes there is a little reaction if a large dose is given, or what is apparently a large dose for the patient

at the time. As a rule, however, if the dose is moderate to begin with, no unfavorable local or general reaction will be obtained.

DR. DODSON said that it is by such collections of cases as Dr. Soper reports that the efficacy of vaccination in staphylococcus as in other bacterial infection will finally be determined. While these staphylococcus infections are often persistent, they sometimes clear up surprisingly with no treatment whatever. Of this sort is the case of a physician suffering from a protracted and exasperating furunculosis who consulted Dr. Hyde. As he had tried all of the usual remedies, Dr. Hyde could suggest nothing except the possibility of opsono-therapy, for which he referred him to Dr. Hekteon and Dr. Hekteon arranged to use it. The patient, however, was obliged to return to his home to arrange affairs before undertaking the treatment and he wrote to Dr. Hekteon a week or ten days later that the boils had completely disappeared and had not returned.

Cases very similar to Dr. Soper's have been observed in the wards of the Presbyterian Hospital. One child for example, entering for some other affection developed a staphylococcus infection, boils appearing in various parts of the body. The workers at the Memorial Institute were readily interested and Dr. Alice Hamilton undertook to prepare an auto-vaccine, taking pus from one of the lesions for this purpose. Before the culture was ready, however, all the boils had entirely disappeared and there was no return whatever. Such cases should serve as a caution against making too positive deductions from a limited number of cases. Had vaccine been given, for example, in the cases cited, they would have gone into literature as evidence of the remarkable efficacy of the vaccination treatment. Notwithstanding such circumstances as these, which do occasionally arise, that there are great possibilities in vaccination treatment for staphylococcus infections cannot be doubted.

DR. DODSON speaking again said that in this connection the possibility had suddenly occurred to him of substituting for animal vaccine definite chemical products or substances like those recently experimented on by Ehrlich, who has turned his atten-

tion quite away from animal products to this new phase of pharmacology. This work of Ehrlich is the most interesting and important of any now being done in the field of experimental medicine.

DR. DENNIS reported that when Dr. Jos. Miller was at the Northwestern University Medical School, he developed furunculosis on the neck. The cause was found to be a coat collar. The coat collar was changed and immediately all the boils disappeared.

He cited another case in his own practice where a woman developed boils in different parts of the body. Her laundry was done by a woman who took the clothes home. After the laundry was changed, the boils entirely disappeared.

DR. JULIUS HESS enquired what percentage of failures there was in the treatment of marantic children and what percentage of these cases show mixed infections. In his experience two marantic children sent to the Michael Reese Hospital for other causes developed a general multiple furunculosis. The abscesses were opened and drained as they developed and individual autogenous serums were made from cultures of both cases, which showed staphylococcus and bacillus pyocyaneus. Two vaccines were made for each case, one child receiving two or three injections and the second about eight, administered twice a week. Notwithstanding the careful diet and opening of the abscesses as well as the vaccine therapy both children died. Whether this was due to lack of resistance or the severity of the infection Dr. Hess was unable to say, but was interested to hear the experience of other members of the Society with mixed infections.

DR. GRULEE said that he would like to ascertain from Dr. Soper the quantity and kind of food given in these cases. It seemed to him that food is important in the treatment of furunculosis, which is frequently regarded as being due to over-feeding, especially to a large amount of fatty food.

DR. SOPER answering the question as to the percentage of failures in the treatment of marantic children said that the best effects were produced in marantic children. Acute cases had appeared and under the treatment the lesions had as suddenly disappeared. In some instances where the treatment for furunculosis had been administered in twenty-four hours the furunculosis entirely disappeared.

It was impossible to give Dr. Grulee a satisfactory answer as to the quantity and kind of food, the majority of the patients had not been fed any too intelligently; some of them had been under the direction of physicians in the Lincoln Park Sanitarium and, if directions were followed, must have been fed in a fairly scientific way. No change of food was made in connection with the treatment.

DR. JULIA D. MERRILL in discussing Dr. Cheney's paper said that seven or eight years ago in the routine examination of a premature infant who died shortly after birth a cystic ovary was found. It was a third larger than the ovary of the opposite side and its surface was studded with cysts which varied in size. One or two were the size of a split pea, but most were only as large as a pinhead. The specimen was loaned for demonstration to another class and all trace of it lost.

PEDIATRICS

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Published Monthly by F. M. Crossett Co., Inc., Burlington, Vt., and 30 West 33rd St., New York.

Telephone, 781 Madison.

Editorial Office: 742 Prospect Avenue, New York City.

Telephone, 607 Melrose.

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EDITORIAL.

This journal has long since contended that children were not alone wards of their parents but of the state as well and the recent message to Congress urging the creation of a Federal children's bureau is the first step in the right direction. "The interests of the nation are involved in the welfare of the army of children, no less than in our great material affairs," the President writes, and it is proposed that the bureau shall be capable of making a thorough study and investigation of matters pertaining to child life, the question of infant mortality, the birth rate, physical degeneracy, orphanage, juvenile delinquency and juvenile

courts, desertions and illegitimacy, dangerous occupations, accidents and diseases of children of the working classes, employment legislation affecting children in the several states and territories and such other facts as have a bearing upon the health, efficiency, character and training of children.

There are many problems in child life that are still unsettled, food, clothing, employment, all these need knowledge developed by careful, scientific, painstaking research, and when this has been accomplished, intelligent legislation may cure many evils.

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ABSTRACTS.

The Diagnosis of Urinary Tuberculosis in Children.—(The Brit. Jour. of Children's Diseases, Sept., 1908), CHARLES A. LEEDHAM-GREEN, Ch. M., says that our views on this subject have radically changed in the past few years, that it is of rather frequent occurrence and that it spreads from the kidneys and thence to the bladder, not vice versa. The condition begins invariably in one of the kidneys and then in the bladder. The disease should be early recognized and determined first if it is tubercular, and secondly, the focus of the trouble and its extent. The history of two cases is as follows:

"A little girl was brought to me after having been under medical treatment for some time for chronic nephritis. Her history was as follows:

Some months ago she began to feel languid and to be easily fatigued, and she complained occasionally of a dull aching in her loins.

The urine was acid, perfectly clear and translucent, with no deposit on being left to stand.

On boiling it showed a haze of albumin, and microscopically revealed two or three renal casts and a few blood-cells. It was no wonder that chronic nephritis had been diagnosed.

But on centrifuging the urine and examining the deposit I found numerous tubercle bacilli, and further examination revealed a tubercular focus in the left kidney.

Again, a healthy-looking boy, aged 12 years, was brought by his mother because of the frequency with which he wet the bed at night. He had been treated elsewhere without avail; indeed he was worse rather than better, in spite of having been circumcised, sounded and dosed with belladonna and worm-powders, the mother finally being told that the trouble was of nervous origin and would disappear at puberty.

On examining the urine I found it highly suspicious, for it was faintly opalescent, and acid; and the centrifuged deposit showed a fair number of pus cells and an absence of micro-organisms when stained with methylene blue.

On being stained appropriately, tubercle bacilli were found without difficulty.

I have quoted these two cases, not because they are of special interest or in any way remarkable, but because they illustrate the

importance of two points in the diagnosis of tubercular disease of the urinary organs, viz.: firstly the attention which should be given to the slightest disturbance, be it discomfort or undue frequency, in the act of micturition, and secondly, that the routine examination of a urine should include a *bacteriological* as well as the ordinary chemical and microscopical one. For it is in this way, and this way alone, that the suspicion of tubercle is likely to be raised whilst the disease is still in its early stages and most amenable to treatment.

The systematic examination of the urine of all patients suffering from albuminuria, irrespective of whether pus or blood is present, will reveal the presence of tubercle in a surprising number of unsuspected cases."

The author in cases of doubt has resorted to the estimation of the opsonic index of the blood, and Calmette's or v. Pirquet's test, great help being received.

In the majority of cases when examined by the cystoscope the bladder shows some involvement, also chromo-cystoscopy is a valuable aid at times.

Measles in Utero.—(Boston Medical and Surgical Journal, Oct. 1, 1908), N. E. MASON reports the case of a primipara of 19 years, who entered the hospital with a distinct measles rash which subsided in eight days after admission. At this period she was delivered by forceps. The child presented a mottling of the skin over the entire body and a branny desquamation over the chest and in the axilla. On the following day desquamation appeared over the forehead, on the plantar surface of the toes and between the toes. On the second day there was more profuse desquamation over the chest and face, being of a markedly furfuraceous character on the sides of the nose. Desquamation was also present upon the abdomen. On the thirteenth day very slight, fine desquamation could be seen over the temples and in the axillæ. On the seventeenth day fine desquamation could still be detected in each lower axilla. On the twenty-first day desquamation had completely disappeared and there was no sign of infection with measles. Mother and baby were discharged well from the hospital on the twenty-third day after delivery. The author quotes from various writers on pediatrics relative to such cases as his own. The main question in dispute arises over the fact as to whether the child has a true measles desquamation or the normal exfoliation of the new-born. Then, also, there is the notable fact that although the mother nursed the child and both remained in the measles ward, the child did not contract the disease, which it probably would have done had it not been for the recent attack. Most writers apparently regard the transmission

of measles from mother to fetus as a very rare occurrence, but more doubt its possibility.

Melancholia in Children, with a Report of a Case.—

(Memphis Medical Monthly, Oct., 1908), J. D. BRIDGER says that it is very rare under eight years. His patient was three years old with a good family history, and was the fourth and last child. The history of the case is as follows:

Prior to coming to Memphis, the patient had lived in the country districts of Arkansas, and enjoyed good health, with the exception of a severe spell of fever when an infant and two weeks' intermittent malaria about one year before coming to Memphis. She was always bright, talkative and playful until her removal to this city, six months before I saw her, when, the mother claims, she was whipped, intimidated, oppressed and otherwise greatly cowed by the matron of an institution in which she had been placed. When seen by the mother on her visits to the institution, she observed that the child seemed depressed and stupid, and was told by others in the institution of the ill-treatment it had been receiving. Patient was then removed to the Day Nursery and Half Orphanage, and was under my observation till recovery.

Present illness.—Patient was in good physical condition, would eat anything given her, slept well and never cried or showed any displeasure at any thing said or done her. Gradually it was noticed that experiences that would please other children made no impression on her. She did not care to play with others, and would sit all day in a corner by herself, or remain anywhere and in any position she might be placed, without any apparent desires. She would eat when given food, but a stick of candy placed in her hands would never be carried to her mouth without being told to do so. She would void her urine or evacuate her bowels only at the dictation of the nurse. At the height of the condition she would sit or lie in bed, absolutely motionless, took no notice of her surroundings, and could not be induced to smile or say a word. She would react very feebly to any form of cutaneous stimulation, and would, to a certain degree, tolerate pain rather than move. There was slight resistance at any attempt at passive movements of arms or legs, giving the joints a waxy sensation, and the limbs would retain any position given them. I have caught her by the hand while walking, and would stop suddenly, releasing my hold on her outstretched hand, and play with children immediately behind her, without her lowering her arm or changing her position in any way for fifteen minutes by the watch. At other times I would leave the arm outstretched and quit the room, watching her without her

knowledge from a window at her back for an hour without her changing the position. The matron of the Nursery had often noticed her retain an unnatural or uncomfortable position for hours unless told by some one to move, or her position changed by them. She gave the impression of one hypnotized, but her submissive mind was subject to any one's dictation.

The only treatment given was outdoor air, good nourishing food, regulated bowels, syrup of the iodide of iron, and the best possible environment. The first improvement was noticed in the cataleptoid condition, and gradually but slowly she became brighter, more talkative and at the end of about three months was apparently normal in every way. She was accidentally burned to death about a year later.

Late Rickets (Rachitis Tarda).—ERWIN MIESOWICZ (Wien. Klin. Woch., July 2, p. 983).—The existence of late rickets has frequently been denied, but some undoubted cases have been published ("Review," 1903, p. 337).

A seamstress, aged 17, was admitted to hospital on October 19. She had been healthy as a child, and learned to walk, and cut her teeth normally. Two years before admission, she had pains in the ankles and lower limbs. Soon the ankles became enlarged and prolonged walking was painful. The epiphyses of the upper limbs became enlarged. Nine months before admission she could walk only by holding surrounding objects, and for 2 months she had been completely bedridden. She could sit up without help but could not stand. Pain was felt only when she attempted to move the legs. Since the onset of her illness she had had frequent attacks of diarrhoea, each of several days' duration, and suffered from catarrhal bronchitis. Menstruation first appeared at 15 and was normal.

She was small, pallid, and ill-nourished. The external genitals and mammae were well developed. There were some enlarged glands behind the neck. The thyroid gland was considerably enlarged. The knee-jerks were exaggerated.

Osseous system.—The frontal eminences were prominent. The teeth were well preserved. The thorax was barrel-shaped and rested directly on the iliac crests. There was a well developed rickety rosary, over which there was slight tenderness. The clavicles were abnormally curved, the left about the middle, forming almost a right angle. This, however, was due to a badly united fracture. The thoracic and lumbar vertebrae were curved with the convexity to the left. The sacrum was normal. The pelvis was not greatly deformed, and was not rostrate. The distance between the anterior superior spines was 21 cm. (normal 23 cm.), that between the crests 33 cm. (? 23 cm.), and that between

the trochanters 33 cm. (normal 31 cm.). The most marked changes were in the limbs. The distal epiphyses of the forearms were enlarged, tender, and less firm than normal bone. Thus the circumference at the lower epiphysis on either side was $15\frac{1}{2}$ cm.; of the forearm 2 cm. higher 13 cm. The lower limbs were extremely deformed. The femora were curved with an outward convexity, and the tibiae were directed outwards so as to produce well marked genu valgum and flat foot. With the knees approximated, the great toes were 20 cm. apart. The epiphyses of the long bones were enlarged. The height was $127\frac{1}{2}$ cm. (4 ft. 2 in.), and the weight 33 kilos. ($72\frac{3}{4}$ lbs.).

The shadows of the bones with the x-rays were less dense than normal owing to the cortex of the long bones being represented by a thin layer which surrounded rarified spongy tissue. Evidently considerable decalcification had occurred. The relations between the epiphyses and diaphyses were also abnormal. Thus at 17 the lower epiphyses of the bones of the forearm are separated from the diaphyses by a scarcely recognizable layer of cartilage. In this case they were separated by a cartilaginous zone several mm. in thickness, and the adjacent cartilaginous surfaces presented irregularities highly reminiscent of those present in ordinary infantile rickets.

The patient was under observation for 4 months. At first treatment was unsuccessfully directed to improvement of the general health. She was then given thyroid tablets and appeared to be improving, but as alarming cardiac symptoms occurred they were discontinued. A preparation known as Stroschein's "ossin" was administered. Improvement was then continuous, and towards the end of the 4 months she could walk unaided for some time. The skeletal deformities persisted, though the epiphyses became firmer and lost their tenderness. A skiagraph showed that the bones were denser, and that the cartilaginous areas between the shafts and diaphyses had disappeared.

Evidently the patient suffered from one of the two diseases—rickets and osteomalacia—which are accompanied by bony softening. The usual form of osteomalacia, which is known as "puerperal," was excluded in a virgo intacta. A juvenile form has also been described. But in this there is no epiphyseal enlargement of the long bones. The diagnosis of rickets was supported also by pelvic measurements, the recurrent diarrhoea, the results of treatment, and radiography. Deydier divides cases of late rickets into localized and generalized. The former include the knock-knee and scoliosis of adolescence; the latter, cases such as the present. Roos has pointed out that cases in which rickets first appears in infancy, but is protracted to or beyond puberty, should not be included under late rickets, which is an exceedingly rare disease. The writer has found only 7

undoubted cases besides his own. In some of these necropsies and histological examinations were made. From these the following facts can be established:

(1) The disease develops after the tenth and usually after the twelfth year, *i. e.*, about puberty, when the rapid growth and ossification of the bones are in many respects comparable to the conditions present in infancy.

(2) The long bones are deformed and the epiphyses are enlarged as in infantile rickets.

(3) The prognosis as regards arrest of the disease by suitable treatment is good.

(4) Skiagraphs of the epiphyseal cartilages are characteristic.

According to Rindfleisch, Ziegler, and others, there are no characteristic histological appearances which would definitely distinguish osteomalacia from rickets. Whether the presence of a goitre in this case was accidental or connected with rickets is undecided.

The Breast Milk Problem.—DR. J. ROSS SNYDER, pediatricist to Hillman Hospital, Birmingham, Ala., in the J. A. M. A. of Oct. 10th, 1908, calls attention to recent studies of 1,000 women, one-half sheltered and well fed in wealthy homes and 500 in tenements, the latter class showing 90% able to nurse their babes for nine months and the former class only 17% for nine months and states that this does not prove that the comforts of the well to do must be taken away, but that they must be shorn largely of social demands and educated in the line of their duty; that in the South the vast majority of cases of anaemia in women is due to hook-worm disease; that the out-door of the well to do American woman is toning her up to meet her full obligations as a mother and that the reason why the tenement woman does so well is that she is the toughened resilient "survival of the fittest." Dr. Snyder speaks in no uncertain terms of the relative value of mother's milk over cow's, and while welcoming all improvements in cow's milk supply advocates a commission for regulating a corps of wet milk nurses to furnish milk directly or in bottles to nurslings.

Fallacious Standards Employed in Artificial Infant Feeding.—DR. GODFREY ROGER PISEK, professor of the Diseases of Children, University of Vermont, in a thoughtful paper analyses some of the standards employed; his deductions are largely destructive; that the cure lies in working out elementary principles which can be accepted not because they are put forward by authorities but because they stand alone. That milk will always be used, percentages varied; alkalies and sterilization as conditions arise; he pleads that successful methods of practice be studied till we know the principles underlying them.

Tuberculin and the Measure of their Activity.—DR. A. CALMETTE, of Lille, says that Koch's old tuberculin consisted of a simple glycerinated extract of bouillon cultures sterilized by heat and concentrated on the water bath down to one-tenth of its original volume, then filtered through thick paper or a Berkefeld filter. It unfortunately contained a large quantity of albumoses, peptones, and salts of glycerin in addition to the secretory products of the tubercle bacilli. These foreign substances produced a temporary rise of temperature in nontuberculous subjects, thus masking the effects due to the tuberculin itself. This defect was overcome by mechanically crushing the dried bacilli and then separating the soluble from the insoluble products by washing with slightly alkaline water, thus producing the tuberculins known as TO and TR. Other tuberculins had been produced by various workers by treating the cultures with varying chemical substances, isolating a long list of products, "tuberculocidin," "tuberculo plasmin," "tuberculosin," etc. These substances did not seem to possess the same physiological and therapeutic properties as the old tuberculin. Denys and Buden employed a culture filtered through a Chamberland candle, and still other workers produced a simple aqueous extract of bacilli without glycerin.

These various products showed the desire on the part of experimenters to obtain a substance that would have all the advantages of the old tuberculin without its disadvantages. The reader described a tuberculin which he had produced, known as tuberculin CL, which was so pure that it could be introduced into the veins of a healthy animal in large doses without producing an elevation of temperature. If the large doses used, fifty milligrammes, were repeated three times at intervals of from six to ten days, the animal was observed in from five to twelve hours after the third injection to react by a rise of 1.8° to 2.5° of temperature, just as if it were tuberculous. Following this phenomenon, the animals became highly resistant to artificial tuberculous infection. The intravenous injection of a dose of virulent bovine tubercle bacilli sufficient to produce an acute miliary tuberculosis in control animals in from four to six weeks merely resulted in a chronic, slowly progressing tuberculosis in an animal prepared with a previous injection of the tuberculin. This product, tuberculin CL, was obtained by centrifuging entire cultures of the bovine bacillus *in vacuo* and at a low temperature. The product was then filtered in order to separate the bodies of the microorganisms, precipitated three times with alcohol and ether, redissolved in water, and dialyzed until all the precipitants and salts had been completely eliminated. The colloid substances which remained on the dialyzer were

then again precipitated with alcohol and ether and dried *in vacuo*. The active substance, therefore, was not modified by being subjected to heat or to chemicals aside from the precipitation with alcohol and ether. The activity of this product could be judged by comparing its action with that of any of the other tuberculins, or by the method of direct inoculation into the brain of a healthy guinea pig. By the latter method 0.8 of a milligramme sufficed to kill a healthy animal—one-tenth as much as was required of the old tuberculin. The tuberculin CL was very well borne by patients, and those physicians who had used it therapeutically had obtained excellent results. It did not cure the disease, but it did delay its progress and seemed to give the person infected some additional resistance to its progress. The best results were obtained with a very small amount, 0.001 of a milligramme, as a primary dose, which was gradually increased until 0.3 of a milligramme was finally given. The injections were given at ten to twelve day intervals, so as to avoid a reaction of more than half a degree centigrade. It was considered wise to keep track of the opsonic index during the course of the treatment with this product, and to see that it was at least maintained at the same level after as before the beginning of the treatment. The tuberculin CL possessed an affinity for the lipoids that were almost constantly contained in the serum of tuberculous patients. The tuberculin was indicated for the determination of the affinity of the patient's serum for the secretory products of the tubercle bacilli, as well as for the diagnosis of the disease.

The Causation and Treatment of Scurvy, Especially Infantile Scurvy.—(British Medical Journal, Oct. 31, 1908).—SIR ALMROTH WRIGHT said that in a disease like scurvy the first essential was to investigate the dietary, a much simpler matter in young children than in adults. This done, they ought to be in a better position to define the disease according to its true etiology instead of trying to classify it according to its symptoms. No one could have much doubt that the essential factor in etiology was to be found in connexion with the diet; hence some classification of foodstuffs was necessary.

[The speaker then read a table in which foods were classified as acid, neutral, or alkaline according to the reaction of their ash after incineration. The acid foods, which he called scorbutic, were oats, barley, fresh meat, salt meats, ship biscuit, wheat, eggs, rice, maize, peas, beans. The neutral, or non-scorbutic, were sugar, vegetable oils, animal fats; and the alkaline, or antiscorbutic, carrots, turnips, potatoes, onions, milk, blood, or meat containing blood, lime juice, orange juice, wood, and green herbage.]

Information as to the production of scurvy might be obtained by carefully examining the dietaries of travellers whose supplies had been limited to certain articles; or of people who, being in great poverty, had tried to support life on tea and bread alone. This would show that a diet of meat and cereals, or cereals alone, produced scurvy, and that those foodstuffs produced scurvy which on incineration showed mineral acids and especially phosphoric acid in excess over mineral bases. Such facts so far as they went would seem to suggest that scorbutic foods produced scurvy by introducing into the system an excess of mineral acid.

Another argument which supported the theory that an excess of acid in the system was in some way concerned in the production of scurvy could be derived from infantile scurvy. Specimens of bone from such cases showed that decalcification was going on. This fact seemed to confirm the view that there was an excess of acid present in scurvy as well as some absorption, or at any rate solution, of lime salts in progress. In Lord Anson's voyage, in men attacked with scurvy, it was found that where fractures occurred and scurvy supervened the callus was reabsorbed, and fractured bones came apart again. He had obtained evidence of acid intoxication on testing the alkalinity of the blood in scurvy patients. In six men invalided home to Netley Hospital suffering from serious diarrhoea and symptoms of scurvy as the result of going through the siege of Ladysmith, the alkalinity of the blood was in each case found vastly below normal. Citrate and afterwards lactate of sodium were then administered, and in all but one symptoms of scurvy rapidly disappeared. As the reaction of the blood became normal the men rapidly recovered. This alteration in blood reaction had also been abundantly verified at St. Mary's Hospital in the case of children suffering from infantile scurvy. Hence the speaker thought that it might fairly be concluded that diminished alkalinity of the blood was in all cases of scurvy a characteristic feature. The excessive ingestion of acid in the blood might, however, be more or less masked either by a production of ammonia, as in diabetics, or by alkali derived from the bones.

With regard to the cure of scurvy when once established, the giving of antiscorbutic articles of diet was rather a roundabout method of treatment, for all these foodstuffs were bulky, and carried a large proportion of unnecessary ballast. A much more direct mode of treatment was to administer the desired alkali in combination with an organic acid—for instance, a compound such as sodium lactate. These substitutes were easily transformed in the blood into the corresponding carbonates. Another principle of treatment should be to replace the calcium

and magnesia salts, which in scurvy might have been extracted from the tissues. Another haemic change in the disease was a great reduction in the coagulability of the blood; hence any treatment adopted should keep in view the possibility of restoring this, and for this reason the administration of lime juice and orange juice was to some extent contraindicated.

Data for Infant Feeding.—(Illinois Med. Jour., September, 1900.)—MILLIGAN, in his interesting paper, concludes that the data on which we have to depend in prescribing food for children are as follows: The proportion of animal to vegetable food should be as 1:22 to 2 and the proportion of nitrogenous foods to non-nitrogenous is as 1:4 or 1:5, and of the protein given at least 50 per cent. should be of animal origin, because it is more easily digested. The caloric demand of the individual is in proportion to each kilogram of weight or approximately to the age, and to meet this caloric demand certain proportions and quantities of the nutrient elements are required. One gram of fat produces 9.3 calories, 1 gram of carbohydrates produces 4.1 calories, 1 gram of proteid produces 4.1 calories, that is, each gram of proteid and carbohydrates has an equal caloric value, while fat has nearly a double caloric value. For instance, a baby 9 months old should weigh about seventeen pounds, or 7.7 kilograms. The average infant in health needs 100 calories to each kilogram of weight; that is, the 9-months baby should demand 770 calories daily or, in terms of food, mother's milk has a caloric value of 650 per liter, cow's milk has practically the same value. By giving the child one and one-sixth liters of milk his demands would be satisfied, but we know by experience that at nine months a child should be fed on other nutrients than the form of those found in milk to produce the best development; that is, less than a liter of milk should be given and the diet broadened by the addition of other foods, such as gruels made from oatmeal, barley or granum. To these can be added salt, a little cane sugar and cream, both to make them more palatable and of higher food value.—American Medicine, Oct., 1908.

Treatment of Whooping Cough.—(Deutsche medizinische Wochenschrift, October 8, 1908).—FEER says that the mortality from whooping cough in the first year of life is higher than that of diphtheria, of scarlet fever, or of measles; in the second year of life diphtheria and scarlet fever are more fatal than pertussis. The most important part of fighting the disease consists in prophylaxis, which is especially possible, as pertussis

is transmitted almost exclusively by direct contact with the patient. The first duty of the physician is to isolate the patient or at least forbid his appearance in public playgrounds for children and in schools. As the disease is especially fatal in the first years of life, all infants should be jealously guarded from infection. There is no specific treatment for the disease. Hygienic, physical, and dietetic measures promise most for the recovery of the child. Of these, abundance of fresh air is the most important item, and patients that are not feverish ought to be kept outdoors as much as possible. The room ought to be well ventilated, and if possible two rooms should be used for the patient, so that one could be cleaned and aired while the other is being used. Change of residence to the country is advisable when convalescence sets in, and not at the height of the disease. Hydrotherapy has but little application in pertussis; compresses over the thorax, however, are often of benefit. Of special importance is the psychic treatment, the child being managed with all kindness and quiet. Medicinal treatment is of little use so far as the disease itself is concerned, but the various symptoms may be treated as they come up. Antimycotics and sedatives are the drugs most used; of the former quinine is of use. Codein may be given to allay the cough. Frequently heart stimulation with caffein is required. The sera prepared by various laboratories have proved useless.

School Hygiene.—The application of the experimental method of psychology has profoundly modified our ideas on pedagogy. As this evolution from an abstract to an applied science advances, the important role that the physician is called on to play in the work becomes more and more apparent. The special knowledge of the physician enables him to solve, better than any one else, the difficult problems in the education of youth. This role of the physician has too long been underrated in France. Up to the present the medical inspection of schools has been very defective, and, indeed, it scarcely exists except in a few large cities.

About six years ago a private society, which is now known as the "French League for School Hygiene," was founded by the initiative of Dr. Albert Mathieu. At present it includes among its 1,300 members about 400 teachers and professors.

The purposes of the league are: 1, to call attention to the disadvantages for growing children of the present organization of the schools; 2, to secure for children the judiciously planned physical exercise and open-air life which are so important for the welfare of the young; 3, to reform educational programs and methods so as to avoid mental overwork and waste of intellectual energy, and, 4, to demand for physicians and for

fathers of families a more effective share in the regulation of the physical and intellectual life of pupils. The league has local branches which work to secure from the public authorities and from the heads of private schools the necessary improvements in school hygiene.

Being a society for propaganda as well as for study and for action, the league has twice organized national congresses of school hygiene at Paris, and is now preparing for an international congress, the third of its kind, to be held in Paris in the spring of 1910.

For two years the league has been holding at Paris a series of medical-pedagogic conferences which have been very well attended. The subjects of some of the conferences which will be held next winter are as follows: The relations of medicine and pedagogy; classes for abnormal children; the prophylaxis of criminality by educational selection; sexual morality in school; instruction in sexual physiology at school; prophylaxis of venereal diseases at school; the maladies of growth, etc.

It is certainly under the influence of the propaganda carried on by the league that the minister of public instruction has decided to take measures looking to the care of the mouths of school children.

These measures comprise the organization of services of dental inspection and of dental treatment and instruction in regard to the care to be taken of the mouth. The service of inspection of the teeth is to be entrusted to a graduate of dental school. The teeth of all pupils will be examined by this specialist twice a year, and the result of the examination will be recorded on a special memorandum, which will be preserved by the head of the school. The expense of the service of dental treatment will fall on the families, like the expenses of illness.

It will be easy, however, for the heads of schools situated in or near the large cities to secure for their pupils the services of the dentists in the clinics connected with the dental schools. Everywhere, moreover, lacking a dentist chosen by the parents, the service of dental treatment, organized outside the school, will be entrusted to a graduate of a dental school chosen, like the dental inspector, by the administration on recommendation of the head of the school, and to be paid in accordance with a scale previously fixed in each locality by agreement with the families. The dental inspector and the dental practitioner will never, however, be united in the same person, since the former is to keep check on the latter by means of a record in regard to the teeth treated and the work done, which the dental practitioner will fill out at each operation. This record will be returned to the school and compared by the dental inspector with his own records.

These measures will apply, not to primary schools alone, but also to the lycées, or grammar schools, and the high schools for boys and girls. At the Michelet School in Paris the two services of dental inspection and of dental treatment will begin with the opening term.

At the same school a fumigating apparatus for the disinfection of books has just been installed, in which all the books belonging to pupils who have had infectious diseases will be submitted to the fumes of formaldehyd. During the summer vacation all books lent to pupils during the course of the school year will be disinfected.—Paris Letter to Jour. A. M. A., September 26, 1908.

Defective Teeth in School Children.—Frank Harrison, M. R. C. S. (Eng.), L. D. S. (Edin.), President of the Dental Section of the British Medical Association, in his address at the Sheffield meeting, spoke of the benefits likely to result from the investigation of the physical condition of school children, by virtue of the English Medical Inspection Act. This examination is to be made by medical men, who, together with other defects and diseases, will have to observe the condition of the teeth and report thereon. He stated that dental disease is the commonest of all diseases in Britain, in the greater part of the rest of Europe, and in other parts of the world as well. Unfortunately, the real causes of this commonest of all diseases are as yet unknown. The lock-up secret of its prevalence is, therefore, one which appeals to physiologists and pathologists, who have the advantages of research work at their disposal. At present, dentists are engaged in treating effects with some measure of success; preventive treatment and the care of children's teeth are very beneficial. Something more is requisite, the cause, or causes, of this widespread dental disease should be ascertained, and, if possible, treated. The following quotation from the Bulletin of the Chicago School of Sanitary Instruction, September 26, 1908, corroborates Mr. Harrison's assertions: "Physical examinations were made by medical school inspectors of 4,195 school children. Of this number, 3,388 were found defective and 1,919 advised to seek treatment. Defects found were distributed as follows: Teeth, 1,215; hypertrophied tonsils, 750; vision, 649; nasal breathing, 134; adenoids, 129; hearing, 100; nutrition, 97; anemia, 95; enlarged glands, 43; cardiac diseases, 35; mentality, 35; skin diseases, 27; orthopedic, 27; palate, 24; pulmonary diseases, 21; nervous diseases, 7. If the physiologists and pathologists of England, America and Canada were to interest themselves in searching for the causes which underlie the widespread dental disease observed in the school children of those countries, valuable discoveries in dental hygiene might be made, and the public would be more thoroughly instructed in the prevention of dental diseases.

TREATMENT FOR INFLUENZA.

It is well known among medical men that rest, simple rest in bed will cure a great many cases of influenza. Symptomatic treatment, however, gives the best results. The pain should be relieved by an anodyne. Quinine should be administered all through the attack, as it has a stimulating effect and antipyretic action and seems to destroy the bacillus. When the pain is severe, two antikamnia tablets every two or three hours will give much relief. To relieve the cough when it is accompanied with a great deal of pain, one antikamnia and codeine tablet every two or three hours dissolved on the tongue, acts very promptly and successfully. That codeine had an especially beneficial effect in cases of cough, and that it was capable of controlling excessive coughing in various lung affections, was noted before its true physiological action was understood. Later it was clear that its power as a calmative was due, as Bartholow says, to its special action on the pneumogastric nerve. Codeine stands apart from the rest of its group, in that it does not arrest secretion in the respiratory and intestinal tracts. In marked contrast is it in this respect to morphine. Morphine dries the mucous membrane of the respiratory tract to such a degree that the condition is often made worse by its use; while its effect on the intestinal tract is to produce constipation. There are none of these disagreeable effects attending the use of Antikamnia and Codeine Tablets.

GLYCO-THYMOLINE.

Description: Glyco-Thymoline is a deep claret colored fluid with the taste and odor of thymol and eucalyptol.

Formula: This preparation contains benzo-salicylate of soda, methyl salicylate from *Betula Lenta*, eucalyptol, thymol, *pini pumilionis*, glycerine and solvents. The alcoholic content is 4 per cent.

Action: A solution composed of Glyco-Thymoline one part, water three parts, approximates the alkalinity and salinity of the human blood, thus harmonizing with the secretions of tissues treated. When applied slightly warmed to the mucous membranes of the nose and throat it is soothing, solvent, mildly antiseptic, exosmotic and anesthetic. It promotes aseptic conditions and favors the restoration of normal functions of the mucous membrane. Internally Glyco-Thymoline is antacid, carminative, and anti-fermentative.

Uses: This preparation is recommended in the treatment of all catarrhal diseases of the mucous membrane, particularly of the upper respiratory, utero-vaginal and rectal tracts, as a solvent,

soothing, antiseptic and alkaline wash. Internally it has been successfully employed to overcome gastric hyperacidity, gastrointestinal fermentation, summer diarrhea of infants, etc. In obstetrical and gynecologic practice it has also proven useful. Its mild, non-irritating properties will suggest its use whenever and wherever an alkaline antiseptic solution is desired. In dentistry it has also been extensively employed.

Dosage: *Externally*—Glyco-Thymoline may be used in solutions ranging from 10% to full strength. *Internally*—It may be used one-fourth to two teaspoonfuls in water as indicated.

Special Consideration: The selection and quality of the ingredients, the methods employed in their combinations, the formula itself and the constant unvarying uniformity of the finished product.

L. Vernon Briggs, M. D., Boston, Mass., Boston Med. and Surg. Jour., April 19, April 26, May 3, 1908.

J. C. Montgomery, M. D., Charlotte, N. C., Charlotte Med. Jour., March, 1897.

W. R. D. Blackwood, M. D., Philadelphia, Pa., Medical Summary, March, 1905.

Prof. B. S. Arnulphy, M. D., Paris, France, The Clinique, Sept., 1897.

David Walsh, M. D., London, Med. Press and Circular, London, Jan. 4, 1905.

Seth Scott Bishop, B. S., M. D., D. C. L., LL. D., Chicago, Ill.

M. E. Chartier, M. D., Faculty of Paris, France, June 12, 1904.

H. McNaughton Jones, M. D., R. U. I., M. C. H., M. A. O., F. R. C. S. I., F. R. C. S., L. M. R. C. P. I., London, Eng., 3rd Edition, 1902.

Manufacturers: The Kress & Owen Co., New York City. —American Medicine, Nov., 1908, Vol. III, No. 11.

IODIPIN IN TABLETS.

Iodipin is a very valuable drug which can frequently be given where the iodides disagree. The only objection is the oily taste, which is apt to be disagreeable where the drug must be given for a long time, as in chronic bronchitis, asthma, and arteriosclerosis. A. Weismann states that for such cases the iodipin tablets recently placed on the market are especially indicated. They are yellow, sugar-coated, and contain each 0.5 Gm. (8 grn.) of an especially prepared solid iodipin, which corresponds to 0.05 Gm. ($\frac{3}{4}$ grn.) of iodine, or 0.065 Gm. (1 grn.) potassium iodide. The dose is from 2 to 4 tablets three times a day. They may be given at any time, irrespective of the condition of the stomach.—Wien. klin. Rundsch., 1908, No. 33.

THE MORPHINE DERIVATIVES IN OCULAR THERAPEUTICS.

At the recent meeting of the American Therapeutic Society, L. Webster Fox, of Philadelphia, read a paper on the above subject, in which he said that dionin, of the newer salts of morphine, was the only one which had proved of value in ophthalmic practice. The conditions in which it was of the greatest service were painful acute iritis and irido-cyclitis, where, combined with atropine, it assisted in breaking synechiæ and relieving pain. In regard to the results experienced in the use of the other morphine derivatives, he was not yet prepared to report.—*Boston Med. & Surg. Jour.*, Nov. 12, 1908.

STYPTICIN IN METRORRHAGIA.

A. Fusco reports two cases of profuse metrorrhagia which were materially benefitted by the use of the stypticin. In one case there had been painful menstruation since youth, and during the last months the flow was profuse, even alarming. Dilatation of the cervix had absolutely no effect. An examination showed that there was no neoplasm, but that the bleeding was probably due to sclerosis of the arteries. A hot douche was given, the vagina was tamponed, and the patient received two subcutaneous injections of stypticin. The hemorrhage did not recur on the following day, when the tampon was removed. In the second case the menstruation was irregular and profuse, and here also the condition was ascribed to uterine arteriosclerosis. Stypticin was injected in doses of 0.05 Gm. ($\frac{3}{4}$ grn.) daily, and after four days all hemorrhage was checked. During the following two weeks the patient took daily from 5 to 6 tablets of $\frac{3}{4}$ grn. The result was that the next period was perfectly normal.—*Rasseg. sanit. di Roma*, 1908, No. 19.

EUQUININE IN THE TREATMENT OF MALARIA.

Malcolm Watson, of Glasgow, reports that the previous terrible infant and child mortality in the Malay States has been entirely stopped by the employment of euquinine, which he administers to his charges in doses of 5 grn. per diem (in a little sweetened condensed milk). Instead of the splutter and struggle experienced with the ordinary quinine salts, he finds the children almost without any exception punctually appearing, each with his tin, at the time of the daily dose. The author states that 12 out of 26 children died from July to December, 1906, while there has not been a single death during the six months of 1907.—*British Med. Jour.*, Feb. 29, 1908.

ICHTHYOL IN GYNECOLOGICAL PRACTICE.

Chesner (*Quinzaine Thérapeutique*, Aug. 10, 1908) contributes an article on the uses of ichthyol in gynecological practice. Ichthyol possesses very active bactericidal properties, and, according to Dr. Latteux, of Paris, will destroy all forms of pathogenic bacteria in a strength less than that in which it is used therapeutically. Professor Unna, of Hamburg, has also shown that ichthyol has marked effects in relieving congestion. Owing to these two properties, ichthyol has been favorably received by gynecologists, and is now used very widely. Professor Pozzi has used it continuously since 1892, and has obtained excellent results. Professor Freund, of Strassburg, and Schauta, of Prague, have used it with unvarying success in uterine infections.

The therapeutic value of ichthyol is due to its high percentage of sulphur, the latter being present in a specially combined state, which gives it the active properties of nascent bodies. Ichthyol should be pure, as, if impurities are present, blisters and other eruptions may be produced. The use of ichthyol in gynecology depends upon the properties which the drug possesses. Thus it is useful in congestions of all kinds; in inflammatory exudations in the genital region, as in pelvic peritonitis, chronic parametritis, chronic metritis, inflammations of the ovary and Fallopian tubes, erosions of the cervix, cystitis, the various manifestations of gonorrhea, and anal troubles.

In gynecology ichthyol is employed as a 10-per-cent. solution in glycerin. Into this fluid pads are dipped, and then applied to the inflamed tissues. Suppositories of glycerin and ichthyol are more convenient, and prevent the unpleasantness of the physician handling the pads. Ichthyol suppositories are very useful also in rectal affections, fissures, fistulæ, and piles. Ichthyol has also proved valuable in vulvar pruritus and eczema. For vulvar pruritus, the following formula, according to Barduzzi, has proved very effective: Ichthyol, 10 grn.; menthol, 1 grn.; dermatol, 5 grn.; petrolatum, 50 grn.; two or three applications a day. For eczema the following ointment is used: Ichthyol, 10 grn.; lanolin, 40 grn.; essence of bergamot, q. s.—*British Med. Jour.*, Oct. 3, 1908.

VERONAL IN INSANITIES.

The treatment of insanities is surrounded with great difficulties. The older drugs employed to combat depression or excitement are unavailable in a number of cases, but fail to respond in some cases. Sulphonal, trional, bromides, chloral, paraldehyde are all good remedies, but none of them is exempt from

certain untoward effects. The new drug known under the name of veronal is no more in the experimental stage, and, from all reports received from abroad and in this country, it appears to be a valuable adjuvant in combating various manifestations of mental affections. In insomnia, in acute melancholia, veronal gives better results than other hypnotics. It produces a natural sleep, and does not disturb the appetite. There is a "cheerful feeling" about the patient when he awakens after a good night's sleep. The lassitude which is usually associated with a large dose of sulphonal is not present when veronal is administered. The average dose in melancholia is from 8 to 15 grn. In excitement of acute mania it is necessary to give an initial dose of 15 grn., with an additional 10 to 15 grn. after a lapse of an hour, if no improvement follows.

Veronal is also efficacious in chronic cases. It is much more easily administered through the tube than sulphonal or trional.

The freedom of veronal from deleterious effects on the digestion and bodily weight is of great advantage in cases of mania, especially where the drug has to be given over long periods. In one case for example, the drug proved to be perfectly safe when it was given to a man suffering from delirium tremens complicated with pulmonary congestion, a dilated heart, and marked multiple neuritis.—*Charlotte Med. Jour.*, Oct., 1908.

BROMURAL AS AN HYPNOTIC FOR CHILDREN.

Professor Ziehen, privy councillor, director of the University Clinic for Mental Disorders, Berlin, recommends bromural particularly in the severer forms of neurasthenic sleeplessness. His greatest praise of the preparation is, however, devoted to its use as a hypnotic for children. In his lecture upon the use of chemical hypnotics in nervous diseases, he lays great stress upon the fact that in estimating the value of a bromine preparation it is not a question as to how much bromine is contained therein, but as to the form in which it is found combined. According to him, bromural is a drug which, in spite of the trifling percentage of bromine it contains, exhibits powerful bromine effects. Owing to its freedom from by effects, it is to be warmly recommended for children in the dose of a quarter, a third or half a tablet, from $1\frac{1}{2}$ to $2\frac{1}{2}$ grn.—*Deutsche med. Woch.*, 1908, No. 14.

USES OF CREOLIN-PEARSON IN CAMPING OUT OR "ROUGHING IT."

"During the months of June to September, inclusive, I carried out a series of investigations, at a colony of tents and bungalows at Rockaway Beach, L. I., and used a very large quantity of creolin-Pearson (saponified coal-tar creosote). I

wished to test its reported effectiveness as a deodorant and disinfectant, as well as antiseptic, and at the summer encampment many opportunities were presented for its use as an antiseptic in dressing cuts, etc., and in taking prophylactic measures, and in keeping the tents in which my family and friends lived sanitary. I was rather sceptical as to the results to be obtained, but I was soon convinced that creolin-Pearson effectively fulfilled the purposes for which I used it.

"The sanitary condition of summer camps depends entirely upon the precautions taken to prevent disease. It is not sufficient to sweep and dust; one must scrub and disinfect besides.

"I made up my mind that I would take it upon myself to keep things at the camp as they should be, and, accordingly, I obtained quite a quantity of creolin-Pearson and distributed it among the campers, with suggestions for use. I directed that all utensils used should be scrubbed with a solution of creolin-Pearson, one teaspoonful to the quart, and then washed with boiling water; that all commodes, cuspidors, etc., should contain a solution of creolin-Pearson, one dessertspoonful to enough water to cover bottom, and allowed to remain so for the day, and then renewed. The floor was scrubbed or mopped by a solution of creolin-Pearson, one tablespoonful to the quart, and the carpets or rugs were swept with a broom dampened with the same strength solution. The garbage and waste, placed in receptacles designated for the purpose, were well sprinkled with a 25-per-cent. solution. It was gratifying to note that with these directions followed, everything was clean and sweet, and there was not one word of complaint.

"The tents we occupied were on the seashore, and whenever one came from bathing a solution of creolin (one tablespoonful to the quart) was used to bathe the feet—thus to prevent contamination from the debris on the shore.

"Many times I was called upon to dress incised wounds of the feet and hands, and I always used creolin-Pearson as the one antiseptic, and in every case but one the result was gratifying—the one exception being due to uncleanness and disobedience to instructions.

"In conclusion, I wish to state briefly and most emphatically my faith in the judicious use of creolin-Pearson, and to recommend particularly that all who contemplate camping out or 'roughing it,' in the vacation period, include in their equipment a liberal supply of creolin-Pearson."—Edgar C. Joyce, M. D., of Brooklyn, N. Y.

CONTRIBUTION TO THE USE OF HEART TONICS.

Dr. G. S. Haynes, of the Pharmacological Institute of the University of Cambridge, writes that the galenical preparations of digitalis and strophanthus vary considerably in their action and continuously undergo changes. It must, therefore, be regarded as a decided advantage that such uniform chemical bodies as digitoxin and strophanthin have been placed upon the market. Even minute doses of strophanthin (0.00001 Gm.) will show a pronounced action upon the isolated rabbit heart transfused with Ringer-Locke's solution. After intravenous injection, strophanthin will act almost immediately.

Most heart tonics give rise to a peripheral contraction of the vessels, which must be kept in mind in case of arterial disease and rise of blood pressure.

When digitalis is indicated but a dilatation of the vessels is desired (as in dilatation of the heart), the drug is preferably combined with purin derivatives (caffeine, theobromine, theophyllin). The most satisfactory member of this group is diuretin (theobromine-sodium and sodium salicylate). It strengthens the apex beat, similar to caffeine.

The coronary vessels will dilate considerably if the isolated rabbit heart be transfused with Ringer-Locke's solution containing diuretin.

By combining a heart tonic with a vaso-dilator, such as diuretin, the heart-beat will become slower and stronger and the blood will pass more freely through the arteries.

The action of heart tonics upon the vagus is in part overcome by the vaso-motor action of diuretin. Diuretin at the same time acts as heart stimulant. Since it renders the pulse stronger and at the same time dilates the coronary vessels, it is indicated in combination with digitalis, since the greatest disadvantage of the latter drug in the treatment of heart disease is the vaso-constriction which it induces.

Besides dilating the coronary vessels, diuretin will also widen the peripheral arteries, but the blood-pressure will not fall below normal since the heart is more active. The large amount of urine passed after giving diuretin is always secondary to the larger amounts of blood which the kidneys receive. A primary, specific action of diuretin upon the renal epithelium has never been discovered.

The combination of digitalis with diuretin is particularly promising in cases of cardiac hydrops, heart weakness, and in affection of the coronary vessels.

A cumulative action is seen particularly with digitalis and scilla, less so with strophanthus. A cumulative action is hardly to be feared after the intravenous use of strophanthin—*Folia Therapeutica*.

PEDIATRICS

Vol. XXI

APRIL, 1909

No. 4

ORIGINAL ARTICLES

MILK AND MORTALITY.

BY IRA S. WILE, M. S., M. D.,

NEW YORK CITY.

A few years ago the world was startled, if not surprised, by a work telling of the uncleanness in the stockyards of Chicago. The description of "The Jungle" created much furore owing to its possible interference with foreign exports. It was not a question of danger to human lives nearly so much as interference with American pocketbooks. In the question of milk, as supplied to the people in this country, there is a condition which might aptly be described as "The Bungle," for the lives of our infant population are sadly neglected through indifferent carelessness and neglect in providing the proper infant food.

A few months ago there was an immense cataclysm in lower Italy, which wakened the sympathy of nations and drew forth large amounts of practical monetary support. Here was an eruption destroying within half a minute 200,000 human beings—men, women and children, wiping out entire families, and plunging the nation into mourning—but this catastrophe was unavoidable, and ascribable only to the deeper laws of nature still unfathomed. In no way could the hand of man, had he been able to foresee the catastrophe, have prevented the loss of thousands of lives. But every year in the United States, there are more people dying

from preventable diseases, going to their death unmourned save by the individual families bereaved, and unlamented by nations, than were destroyed by the hand of fate one month ago. If all the people who are to die within the next year from a preventable cause, and a cause preventable by acts of man—were to die within 30 seconds—nations would witness a catastrophe compared with which the Sicilian earthquake would not be so significant. There is going on a waste of human lives, unlamented, because it is spread over a period of time. A large factor of this preventable mortality must be laid to the milk supply, and, we may say in passing, that milk mortality is nothing compared with milk morbidity, for there are five cases of sickness to every death. One hears at times, from those who are higher up, a certain amount of wisdom “touchin’ on and appertainin’ to” race suicide. It is not a question of more children, but the preservation of those who are born. It is not a question of the decline of the race from non-productivity, but a lessening of the civic infanticide which is so rampant in this country. The average length of life, I admit, has increased from 18 years in the 17th century to 38 years in the beginning of the 20th century, but that does not lessen the horror of the fact that 30,000 people died in the city of New York alone in the year 1907 from diseases which the power of man could have prevented.

It is the duty of the State to protect minors, and when a state neglects this duty so far as to allow infant mortality to remain at a high figure, it is guilty of state infanticide. There is more care given to the investigation of the fungi on rye and wheat, or the variation of flowers under culture, than is spent upon determining the method of best securing a safe, healthful, and nourishing food for the infants and the minors given to their care.

In England and Wales during the year 1904, the total number of deaths was 549,393, of which number there were 137,490 deaths under one year. This death rate under one year represents one-seventh of the total births in England and Wales for 1904 (947,703). One-half of this death rate under one year was from preventable causes. In

Munich, in 1903, of over 4,000 deaths in infancy, 83% of the babies were artificially fed. In Berlin, in the five years, 1900-1905, out of the 41,383 dying, only 9% of the deaths were among breast-fed children. Budin, in Paris, reports the death rate among breast-fed infants as only 9½%. It is interesting to note that prosperity aids in increasing the infantile death rate because the mothers go to work during periods of good employment to secure a surplus for the rainy day, and consequently give up the nursing of the child and place it upon artificial foods. Dr. Hope, of Liverpool, estimated the ratio of deaths from bottle-feeding as opposed to breast-feeding as 15 to 1—15 deaths among children on artificial food, to every one death among children brought up on maternal milk. Very evidently the problem is to feed the babies through the mothers and not through the cows. Give the mothers the cow's milk. Let the mothers nurse the children. Incidentally, this is a more economic use of the cow's milk in that it supplies two individuals.

The question of milk mortality is not one dependent wholly on the congestion of population, but affects the rural districts almost as much as the urban centres. According to the statistics covering the registration area of the United States for the year 1906, the number of urban deaths reported was 210.1 per thousand total deaths; for the rural districts it was 185.8 per thousand total deaths. While the city of New York has been growing in population the death rate has been decreasing. The death rate under 5 years, for the city of New York for 1891 was 96.6, 1896—77.5, 1900—67, 1904—54. During 1908 the death rate of the congested boro of Manhattan was 16.45 while the less thickly populated boro of Bronx had a death rate of 19.35 and thinly settled boro of Richmond, 19.48. Wherefore, it is apparent that something else besides congestion and poverty is responsible for the loss of infant life. New York City, in the year 1907, gave a total of deaths of 72,205, of which number there were under 5 years 25,749; under one year 17,437. A little under one-fourth of the deaths in the city of New York was in children under one year. Of these 17,000 deaths fully 13,000 were from preventable causes. In the summer time 50%

of the deaths are in children under one year. Why is there so much tradition regarding the deadliness of the second summer among young mothers? It is not a question of temperature, it is not a question of moisture, but it is a question of that something which increases the death rate. The second summer roughly represents the period at which children are weaned, it represents the time when they are deprived of the maternal milk and put upon artificial food; and it also represents that period of the year when milk is in its most unsafe condition for infant consumption. The toll paid for impure milk as paid by intestinal diseases is at least 50,000 babies a year in the United States. One-sixth of all babies in New York City died before the end of the first year. Nearly one-half of these deaths are due to gastro enteric diseases, wherefore the food of infants comes immediately under suspicion.

In the District of Columbia, the law of 1895 which aimed to secure a pure milk supply, was a great factor in reducing the death rate in children under one year from 26.94 to 18.13 in 1905. It is estimated that about 25% of mothers in affluent condition nurse their children for 3 months and about 90% of the infants living under poor tenement house conditions are nursed to 9 months, so that after 3 months and 9 months respectively, on the average, children become dependent for their food in part, upon the cow. There is no question but that if it had been intended that babies should be brought up on cow's milk they would either have been born calves, or at least have been provided with as many stomachs as a calf.

The cleanliness of milk is especially important when one considers that, next to bread, milk is the most important food stuff in this country. In the city of New York, in 1902, out of 3,970 samples of milk examined, 2,095 (52.77%) were found to be adulterated. "The spirit of murder lurks in the very means of life." "Constructive murder" is the proper characterization of the municipal, state, or national neglect which permits homes to be robbed and infants destroyed by gross and criminal neglect of that one food, the care of which would prevent the annual "slaughter of the innocents."

Regarding the question of pasteurized milk, and sterilized milk, there is much discussion—more at present upon the question as to whether the nutritive properties of the milk are disturbed than as to whether the growth of bacteria is stopped. It must be remembered that dirty milk cannot be washed—once dirty always dirty. Pasteurization can prevent an increase in the bacterial life in milk. The benefit of pasteurization was shown by the celebrated experience on Randall's Island, where children from poor homes, of all stages and conditions, under a uniform shelter, uniform clothing, uniform discipline, having raw milk on their dietary, had a mortality of 44.36. Immediately after the introduction of pasteurization in milk, without any other alteration in their modes and habits of life, the death rate fell to 19.80. The uncleanness of milk is partly evidenced by the sediment which may at times be found in it. Soxhlet, of Munich, has pointed out to our discomfiture that this sediment is composed of dust, hair, bacteria, fungi, and detritus of fecal origin. It is not a pleasant thought to contemplate that 90% of the germs in milk probably have their origin in the intestinal tract of the cow. Probably 5% of tuberculosis in early childhood is due to milk infection. Von Behring believes that many cases of tuberculosis in adults is of intestinal origin, the infection having occurred during infancy. If this be true, we should be even more circumspect regarding our milk supply.

It is very certain that tubercle bacilli may be present in milk coming from cows where the tuberculin test alone can determine that the cow is really tuberculous. Sachs has stated that "the increase in the frequency of tuberculosis with the advance of age from childhood to adult life makes it evident that the eradication of tuberculosis in the human race can never be accomplished unless the child first of all is protected from infection." Schlossman agrees "that a successful campaign against tuberculosis can be waged only if we prevent infection during childhood." To prevent such infection the milk supply must be protected. Various epidemics have been conveyed by milk. Foot and mouth disease against which quarantine is now being practiced in several states may be spread by milk. Dr. Kober

reported to the International Medical Congress in 1900, 195 epidemics of typhoid fever attributable to milk-borne infection, 99 epidemics of scarlet fever and 36 epidemics of diphtheria.

That milk is exceedingly sensitive to change can readily be appreciated by the alteration of flavors in milk depending upon the character of the food given to the milch-cow. A flavor of garlic, wild onions, turnips, is often very noticeable when such food has been supplied to the cow. The feeding of the cow upon distillery swill produces a natural milk punch, whose alcohol might find much favor in prohibition states. In the securing of clean milk many factors must be considered. The producer must eliminate the unnecessary dirt, the poorly ventilated stables, dirty pails, strainers, and other utensils; the dirty attendants must be taught cleanliness; and, above all, the diseased cattle must be removed and their uncleanness must disappear. The dairies must take upon themselves an increased cleanliness. There must be more care in transportation. There must be better icing. The city ordinances must throw a heavy mantle of protection over the milk supply by carefully regulating the character of milk which is to be sold in the city, and the temperature at which it should be kept. The retailer has his problem in keeping the milk clean and cold. Lastly, the consumer must treat the milk so as to keep it pure, or preventing it from growing more impure. The home inspection of milk should involve knowing if there be a visible sediment when it is delivered, or if loose milk has a sediment after standing for two hours. The milk should be delivered cold in New York City, at a temperature not over 50 degrees. The consumer should know if the milk reaches his home at that temperature. The consumer should know if his milk comes from tuberculin tested herds of cattle. He should know that *his* bottles at least are returned thoroughly clean.

In comparatively small cities like Rochester, N. Y., and Copenhagen, it is possible to have a municipal milk supply of raw clean milk. In large cities, like New York, the problem of securing a clean milk, and a cold milk, is not so simple. The problem of a cold milk is a co-ordinate problem with that of a clean

milk, because starting with the clean milk, unless it is kept cold, it soon becomes impure. Petruschy has shown that a clean milk containing only 300 bacteria per cubic centimeter (and, remember, a cubic centimeter is a quarter of a teaspoonful) will increase in 24 hours, in room temperature, to 10,000,000 per cubic centimeter; but if the milk is kept at 50 degrees F. the yield of bacteria will be but 50,000 per cubic centimeter.

And yet there are but ten cities in the United States which have a law requiring milk to be kept at a temperature of 50 degrees or lower. The difficulty of keeping a clean milk pure in New York City, in our tenement house population, cannot be overestimated. Refrigeration is not a simple matter. Investigation by the New York Milk Committee, among its patrons at Infants' Milk Depots, has shown that in some districts of the city 80% of the homes possess absolutely no refrigerator of any kind! I venture to say that 40% of the tenement homes are without means of properly keeping their milk cold even if they should receive a cold milk during the summer season.

In addition to the securing of a pure milk supply, I believe the education of the mother regarding the necessity of breast-feeding is most important. The Infants' Milk Depots which have been established in this city are doing much to assist the mother in preserving the health of her child by avoiding the dangers of ignorance and impure milk. Weekly consultations are held for the purposes of encouraging breast-feeding, to teach the care of the child during the weaning, to provide a correctly prepared food for the child when the mother is unable to supply the natural milk. The honey-combing of a city with such milk depots would be a large factor in diminishing the child mortality which is so closely related to the imperfections of our system of securing pure milk. In New York the difficulty of securing a pure milk is most difficult, as the problem of obtaining 1,800,000 quarts of milk per day is no small one, especially when Interstate Commerce is involved and efficient milk inspection appears impossible.

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ADENECTOMY AND TONSILLECTOMY.*

BY WALTER D. LUDLUM, M. D.

The short title of this paper given on the folder has been taken purely as a matter of convenience, for it is the writer's intention to speak from the standpoint of simple clinical observation about hypertrophied tonsils and adenoids and their relief; and so the paper may cover a rather broader scope and perhaps be less complete on the narrower one than its title implies—still I think most of its contents can be considered fairly pertinent to the said subject.

The necessity and indications of these operations, then, are to avoid the results of the abnormal condition present: that is, the symptoms and results of adenoids and enlarged tonsils come within the scope of this paper.

Among them the following are important:

a. Mouth breathing with its results and attendant ills, such as poor respiratory development leading to a high liability to all forms of respiratory disorders and contagious diseases. Irregular dental development and high palatal arch, poor general nutrition, partly from inability to masticate, partly from swallowed secretions.

b. Nasal catarrh, or frequently repeated, almost continuous coryza, less often, but frequently, bronchitis, due, of course in a measure to infectious agents but such agents as far less often gain a lodgment and do harm if nasal respiration is unimpeded and the lymphoid nidus of infection absent.

c. Otitis media—in children at least I think this condition unusual except in the presence of adenoids, certainly when a sequel of a simple coryza, but even when a complication of a contagious disease. Deafness, secondary or not to the coryza.

d. Greater liability to scarlet fever, diphtheria and measles and to have them severely if attacked by them.

*Read before the Medical Society of the County of Kings, Section on Pediatrics, Brooklyn, N. Y., Feb. 19, 1909.

e. Greater liability to tonsillitis of all types.

f. Greater liability to rheumatism from tonsillar infection—a point perhaps not positively proven but pretty generally believed.

g. Greater liability to tubercular infection.

h. Night restlessness and daytime restlessness and inability to fix attention (aproxexia). Disorders of taste, smell and speech.

j. Recurrent cervical adenitis, of which adenoids are the most frequent cause.

Some or many of these symptoms are usually present but occasionally in a very slight degree in the presence of an anatomic abnormality.

What shall we take as the indication for operation? The presence of a demonstrable anatomic hypertrophy, to the eye for the tonsil, to the examining finger for the adenoid, or the presence of symptoms.

I believe that in the presence of symptoms of any note whatever, even though anatomical enlargement be but slight, the growths should be removed. In the absence of symptoms if the hypertrophy be great, and such a condition I think usually implies insufficient or careless observation, they should be removed as a prophylactic measure.

This leaves, in my opinion, only a group where hypertrophy is slight but demonstrable and where symptoms are absent in which there can be a question as to the operation being indicated. Of such cases I saw a number in the Fall, sent home from school by the medical inspector, on which I did not consider operation indicated yet where I would not consider another man at fault if he operated.

THE OPERATION ITSELF.

A laryngological friend says he believes no other operation so often inefficiently done and I agree with him. Anyone thinks he can do it and often he cannot. Within a week I saw a case of severe tonsillitis simulating diphtheria. On my last visit, when the condition was much improved, I remarked rather casually,

"That boy should have his tonsils and adenoids removed." "Why," the father said, "he had it done three months ago." What can one say? Those tonsils were as big as the end of your thumb. Granted the adenoid thoroughly removed (I did not investigate his post nasal space) I think it highly improper for the operator to have left those tonsils there when pretending to do such an operation.

A few weeks ago I was called to see a pronounced mouth breather—no tonsils, post nasal space full—operated on in September last. Recurrence? I doubt it.

Did those operators pretend and claim to do only one operation? Tonsillectomy in the one case; adenectomy in the other? If so my very positive professional opinion differs from theirs. Adenectomy and tonsillectomy should always be performed at the same session if there are present together adenoid growths and enlarged tonsils.

RECURRENCE.

While I have seen recurrence after operation by excellent men I am increasingly convinced that recurrence implies incomplete operation. I am willing to make large allowance in early infancy—there recurrence is frequent—but even there I think it probable that the operation was incomplete. In this case, however, the complete operation may be nearly or quite impossible and even an incomplete one gives sufficient relief to justify it.

HOW TO PERFORM THE OPERATION.

As just emphasized, completeness is essential to the operation and the details of the procedure may vary and still attain that result. Most of us, I think, prefer the method to which we are trained and I wish to claim no credit for the details I suggest, but give them to the laryngologists from whom I learned them.

PREPARATION.

Local. As a rule an operation should not be performed in the presence of any acute inflammatory condition, so if any such

be present it should be relieved, otherwise I doubt the advantage of local measures.

General. A cathartic should be given the night before, though in the case of a child regular in habits I doubt the necessity for even this. No food the day of operation, except a cup of broth early. The operation performed as early in the day as possible—a measure especially important in any children's operation.

Anaesthesia: Preferably with nitrous oxide and ether—never chloroform. Have the child properly restrained by pinning in a blanket, the hair covered by a towel pinned tightly, covering the eyes, the head projecting over the head of the table on a slanting shelf moderately overextended, O'Dwyer gag in position, the light the best possible, preferably electric headlight.

Adenoids to be removed first. Draw out the tongue with tongue forceps for the removal of the adenoids. I use the forceps of Dr. French's pattern for most of the work, using the curette a little, guiding the operation with the left forefinger in the post nasal space. I believe that properly used either forceps or curette can do the work and the essential point is that all friable lymphoid tissue be removed from the naso-pharynx, the side spaces close to the eustachian prominences deserving special attention.

In laying emphasis on completeness it must not be forgotten that positive as well as negative harm can be done. Of course, do not cut the septum, uvula, eustachian prominences, &c., but it is easy to strip up the posterior pharyngeal mucous membrane and cause harmful adhesions between the soft palate and posterior pharyngeal wall.

When haemorrhage has practically stopped pack the post nasal space with a sponge or two, to be removed after tonsillectomy.

Free the tonsils from their anterior and posterior pillars with the instrument made for that purpose, remove all the tonsil possible with the tonsillitome, which should be introduced not in a sagittal plane, but distinctly obliquely, external pressure being made on the tonsil at the same time. Then such tonsillar tissue

as is left clear out with the tonsil punch, retracting the anterior pillar to see your work. Leave the tonsillar fossa clean both to visual and tactile observation. Frequently, perhaps, the tonsillitome alone will serve, but if dependence is placed on that alone I believe that a majority of the operations will be less complete than might or should be, especially at the upper angle. Often close behind the anterior pillar a bit of tonsillar tissue will be left which should be removed.

After treatment: Locally, I believe, as a rule none is necessary, though a throat spray may be used. Generally, light diet, broths, milk often diluted, gruels, ice cream until the bowels have thoroughly moved and the throat feels easy enough to swallow heartier food. Cathartic should generally be given the day after the operation. The patient should be detained in bed only one or two days, in the house from three days to a week depending on the weather.

COMPLICATIONS AND SEQUELAE.

Practically only two—infection and hemorrhage. Both are far more apt to occur in adults because of the larger blood vessels cut and the greater amount of adjacent connective tissue. Neither is apt to occur if acute inflammation is absent and a proper complete operation without wounding adjacent parts is performed.

The child should be examined from three to six weeks after the operation and if adhesions are present in the post nasal space these can and should be broken up with the finger.

With the necessity for an operation present and the operation satisfactorily performed the results are almost consistently gratifying.

SPINA BIFIDA—REPORT AND PRESENTATION OF CASE.*

BY W. PINGREE CURTIS, M. D.

Spina bifida or hydromyelocele is an embryological defect of the spine due to an incomplete development of the bony arches of one or more vertebrae whereby a cleft is formed through which fluids or other contents of the neural canal may protrude as a tumor, which owing to the lamina development is usually situated in the lumbar or sacral region.

Appearing as this does in succeeding generations or in several members of the same family as a tumor or some of its accompanying deformities one must consider heredity an important factor, however, this condition being normal at certain periods of intrauterine life, an inflammation or injury of the cord or its meninges, at this time may interfere with or arrest normal development.

During segmentation the epiblastic layer from which the cord is developed may remain adherent to its epiblastic covering, preventing development of normal structures between the cord and spine.

Spina bifida is commonly divided into varieties according to the pathological condition present.

Meningocele has a small cleft through which protrudes the dura mater and arachnoid forming a pedunculated sac, which is filled with cerebrospinal fluid, lying posterior to the cord in the arachnoid cavity or subarachnoid space. The tumor is covered by normal skin.

Meningomyelocele presents a much larger bony cleft which is usually palpable, the sac containing not only dura mater and arachnoid but nerve fibers and cord substance, sometimes suspended in the fluid but usually spread out over the posterior wall of sac, the fluid also occupying the anterior arachnoid cavity

*Read before the Chicago Pediatric Society, Feb. 16, 1909.

or anterior sub-arachnoid space. The tumor varies in size from an egg to a cocoanut, is sessile, freely fluctuating, never pedunculated and covered only at its base by normal skin, having a large central cicatrix upon which is often found a furrow or dimple representing the attachment of the cord fibers upon its inner surface.

This form of tumor is usually accompanied by deformities and paralyzes elsewhere.

In syringomyelocoele the fluid accumulates in the central canal causing great dilatation of same with atrophy and attenuation of the cord elements, all of which with the dura mater and arachnoid are pushed through the large bony cleft. This form of tumor is usually accompanied by hydrocephalus deformities and paralysis.

Spina bifida occulta appears not as a tumor but as a furrow-dimple or possibly only an overgrowth of hair on the skin over site of bony cleft.

Spina bifida often presents no symptoms excepting the tumor, however, the defect is always present at birth appearing in the median line in any portion of the spinal column, but most frequently in the lumbar or sacral regions—sometimes as a mere depression in the skin or an overgrowth of hair but most frequently as a small tumor gradually increasing in size—it may be pedunculated or sessile, covered entirely by normal skin or have a large central cicatrix, is translucent and fluctuates freely, the bony fissure is usually palpable except in meningocele the over development of hair when present forms a crown over the center of the bony cleft. This is especially pronounced in spina bifida occulta. All forms excepting meningocele are frequently accompanied by paralysis, marasmus, deformities, hydrocephalus and incontinence of bladder and rectum.

There is usually a gradual increase in size until ulceration of sac, rupture, infection, meningitis, convulsions and death, or spontaneous closure with obliteration of the sac may take place either with or without rupture.

The prognosis depends entirely upon the variety, complications and treatment. Most cases do not survive the second year

of life. As regards a cure meningocele is by far the most favorable. Many cases, especially those properly treated, pass through life with no other symptoms developing.

Some cases of meningocele respond very nicely to treatment, but if accompanied by complete paralysis the outlook is exceedingly poor. Syringomyelocele with hydrocephalus is hopeless, usually dying in a few days.

Hydrocephalus and paralysis often follow either the aspiration and injection or surgical treatment, and is always fatal.

We cannot expect to materially improve a coexisting paralysis by any form of treatment.

The diagnosis of spina bifida is not a difficult matter but to differentiate its varieties may be very hard—some diagnoses not being made until the sac is opened—however, the seat of defect, size of bony cleft, form of tumor-coverings and accompanying phenomena, will usually suffice.

Meningocele usually appears in the sacral region, rarely in the cervical, lumbar or dorsal, having a small bony cleft which is not palpable, the tumor is pedunculated, translucent, covered by normal skin and with no accompanying paralysis.

Meningomyelocele has a large palpable bony fissure, is sessile, translucent and freely fluctuating, the base only is covered by normal skin, there being a large central cicatrix, which is usually umbilicated at point of cord attachment. The cord may be seen as a shadow. This form usually appears in the lumbo-sacral region and is often accompanied by paralysis and deformities.

Syringomyelocele has a coexisting hydrocephalus, with accompanying paralysis of lower limbs, sphincters of bladder and rectum, and deformities elsewhere. Pressure on tumor causes bulging at fontanelles with symptoms of cerebral pressure.

Repeated aspirations are not very satisfactory and can only be called palliative.

Aspiration and injection of Morton's solution produces good results in some cases, but convulsions and sudden death may result.

Ligation or clamping of sac is to be condemned, as we may destroy any portion of cord, contained in the sac, thereby causing paralysis of extremities, sphincters, etc.

Electricity has been used with little if any success.

Plastic operations are without question the best mode of treatment in practically all cases and should be performed at the fourth or fifth month, unless indications for earlier treatment exist.

The operation consists of opening the sac, draining off excess of fluid, dissecting off all portions of cord substance and returning same to canal, if possible, closing cleft by suturing flaps and normal skin over same.

CASE:—This little Italian girl, now aged ten and one-half months, came under my observation six and one-half months ago, with the following history: Father, laborer, aged thirty-seven years, moderate drinker and family history negative. Mother, aged thirty-four years, family history negative, two previous children, boy aged seven years, girl, aged nine years. Both normal and healthy; no children dead and no miscarriages—labors normal.

At birth this little girl had a slightly protruding soft area in the median line, sacral region—which increased rapidly in twenty-four hours, to the size of an egg—gradually increasing until at four and one-half months the tumor had assumed the size of a large cocoanut, and presented the following characteristics: Situated in the median line, over the sacral region, with a broad firm base, measuring three and one-half inches in diameter and covered at that point by normal skin, the central cicatrix was rough and uneven, but not ulcerated, tumor fluctuating freely and transmitting light; bone fissure large and in first sacral vertebrae; fontanelles open; tendency to talipes equinovarus of right foot, no other deformities or paralysis.

Referred patient to Dr. W. R. Cubbins for surgical treatment, who did a plastic operation on same. A short time later what simulated a return of the tumor proved to be only an infected suture which soon disappeared leaving a perfect result as the case will show.

A CASE OF ARTHRITIS DEFORMANS IN A CHILD.*

BY DR. A. S. HERSHFIELD.

Bertha S.—10 years old.

Family History—Father was a farmer in Hungary, was always well and denies any venereal affection. Mother had five children, all alive but one, of which the little patient is the fourth. The pregnancies were all normal.

Previous History—The little patient had measles when three years of age, and up to time of onset of the present trouble had no other sickness.

Present Troubles—Onset—When five years of age, the little patient was playing in a garden, and towards evening fell asleep on the moist ground. Three or four days later the child began to complain of a pain in the left ankle. She had a slight fever at the time. Gradually the ankle began to swell, was red, and painful to touch or motion. This acute condition continued for about four weeks and gradually subsided but left the ankle enlarged and disabled. Soon after the right ankle went through the same state as the left. For nearly three years following, the inflammation would come and go, and as time went on the patient found that walking was becoming slightly more difficult. Two years ago she began having pains in both wrists, simultaneously, the inflammation being subacute and had with it but slight constitutional symptoms. During this period she had a slight inflammatory condition in the knuckle joints of both index fingers and middle finger of the left hand. It was also noticed that the little finger of each hand and second toe of each foot was becoming contracted. She further complained of pains in the knees and elbow joints, but in these regions there was no acute inflammation.

Examination—The child looks her age, is well nourished, has good color, is bright and of happy disposition. She shows

*Read before the Chicago Pediatric Society, Feb. 16th, 1909.

no deformity of the face and neck. The glands of the neck are not palpable. The shoulder joints are both normal and are freely movable. Elbow joints show enlargements of the heads of the ulna and radius, and the child complains of pain occasionally in both joints. The wrists are notably enlarged, and the enlargements are homologous. The wrist joints creak when



BERTHA S. 10 YEARS OF AGE. ARTHRITIS DEFORMANS. RIGHT
HAND POSED TO SHOW DEFORMITIES OF WRIST AND FINGERS.
LATERAL AND FRONT VIEW OF ANKLE.

manipulated. The motion is limited laterally but can be fairly flexed and extended. When the hands are held out they assume the so called "seal fin" position. The knuckle joints of the index fingers are markedly enlarged as are the corresponding joints of the middle finger of the left hand. The joints of the thumb are greatly enlarged and that finger is longer in proportion to the

other fingers. There is some enlargement of nearly all the joints of the fingers and the little fingers show contracture. There is inability to completely close the hand, the forefinger and thumb being but slightly flexed. There is considerable atrophy of the muscles of the forearm. The vertebral column shows no involvement. The axillary glands are not palpable. The heart and lungs normal. No enlargement of the spleen. The inguinal glands are palpable. Hip joints freely movable. The knee joints are enlarged with some effusion and the child complains of intermittent pains in them. The muscles of the leg show some atrophy. The ankle joints are enlarged and correspond to the enlargement of the wrists. There is effusion on the outer side of the ankle joints. The ankle joints are more freely movable than are the wrists, and creaking can be obtained upon manipulation. In walking the little patient assumes the attitude of a flat foot, not using the ankle joint in locomotion. Owing to this condition she is able to run but little and with difficulty. The large toe on each foot is enlarged and considerably elongated, out of proportion to the rest of the toes, the second toe is in state of extension. There is no enlargement of the other toes. Pulse rate between 90 and 100 and of moderate tension. Urine negative.

The subacute onset, the slow progress and the symmetrical distribution of the joints affected, strongly suggests that this case is one of nervous origin, corresponding to the disease occurring in the adult.

451 S. Center Ave., Chicago.

NEW YORK ACADEMY OF MEDICINE.

Section on Pediatrics.

STATED MEETING, HELD MARCH 11, 1909.

DR. ELI LONG IN THE CHAIR.

A CASE OF EXOPHTHALMIC GOITRE IN A GIRL TEN YEARS OF AGE.—Dr. M. Nicoli, Jr., presented this case. The clinical data regarding this case was insufficient because observations had been made only during a week or two. The father was an Austrian Jew, 43 years old, and had been in this country thirty years. He was a moderate drinker and probably an excessive tobacco chewer, but denied ever having had venereal disease. Physical examination was negative except as giving evidence of a highly nervous mental condition, and a slight tremor of the face when speaking. His eyes readily filled with tears. The action of his heart was normal. The mother came from the same country as the father, had been married twenty-three years, had seven living children and no miscarriages. The two youngest, three and six years of age seemed normal, and one girl of nineteen was said to be strong and well. The oldest boy had gone to City College for four years but had given up work because of nervousness and weakness for the past three months. His thyroid gland at the upper part showed no hypertrophy, but his eyes had the prominence of his father's. His pulse was between 120 and 142 when he was seen at the clinic. A fourteen year old girl was said to have frequented the clinic for years to be treated for asthma. She had a chronic emphysema and when first seen had a typical asthmatic attack. These attacks came on in damp, rainy weather. Her pulse had ranged between 120 and 165, the latter during an attack of influenza. If there was an enlargement of the thyroid it was not palpable. A ten year old sister came to the clinic to have her eyes treated. She seemed to have an exophthalmus, fairly

well marked von Graefe sign and marked pulsation of the retinal vessels. The thyroid was distinctly enlarged. The patient was moderately nervous but attended school regularly. Her pulse varied from 120 to 145. Her urine was normal. Dr. John Rogers, Jr., said that the apparent heredity in these cases and the diagnosis was of interest. He believed that heredity increased the susceptibility in these cases. The parent might transmit a certain amount of weakness in certain organs or perhaps a diathesis. In the diagnosis of exophthalmic goitre there seemed to be one characteristic "fatigability," and the nervousness brought on by a little emotion or strain. He thought the condition could be made worse or better by the administration of thyroid or thyroid products. Dr. Riggs had been working in the Cornell laboratory for two years to determine the iodine content of the thyroid gland and had proven that the ideas in vogue regarding the iodine content of the thyroid gland was very erroneous. In exophthalmic goitre the proportion of iodine to the weight of the gland was very much less than normal; this diminution was in direct proportion to the severity of the disease. This was probably due to some defect in the gland which caused a failure to take up the iodine. These patients could be made better or worse by the administration of small doses of iodine, which showed their susceptibility to this agent. The various defects presented by the different members of this family, one having asthma, another headaches and constipation, another being feeble and the father showing mental defects, seemed to show that the thyroid was intimately connected with nearly all the organs of the body. Any strain on the nervous system made the disease worse and disorder of the digestion aggravated it. In fact any intercurrent affection seemed to make the disease worse. He believed that this gland was concerned in the fundamental chemistry of every organ and tissue in the body and that it had an "activating" effect upon each. Both the quantity and the quality of the secretion had to be considered in every case. In some cases the quantity of the secretion was too great and had to be cut down by means of surgery or by a specific antiserum. In other cases the quantity was not in excess but the quality was

impaired and had to be "helped out" as it were, by one or another of the pure thyroid proteids, or by iodine. Every effort should be made to improve the general nutrition as this in turn affected the thyroid and the quality of its output.

A CASE OF INOCULATION TUBERCULOSIS FOLLOWING RITUAL CIRCUMCISION.—Dr. Sara Welt-Kakels presented a baby, six months old, born of healthy parents and breast fed, in which there was no history of lues or tuberculosis. The parents had been married four years and had one other child who was healthy. The baby was born at full term and at birth had been slightly asphyxiated. On the ninth day he was circumcised according to the orthodox Jewish ritual. The wound was sucked by the operator, who had followed his occupation for the past thirty years. He had a cough and in all probability tuberculosis. Afterward the wound looked inflamed and the surrounding parts red and swollen. The child seemed feverish and suffered from a slight digestive disturbance. Some four weeks later the mother noticed a swelling in the left groin and consulted a physician, who prescribed an ointment. No improvement followed its use. In December the child was brought to Mt. Sinai Dispensary, showing a small hydrocele on the right side and a glandular swelling in the left groin. When the woman returned again some weeks later the prepuce looked oedematous, a slight nodule was felt in its periphery and fluctuation was felt in the glandular swelling. This was aspirated and a thin serous discharge, mixed with flocculi escaped. Tubercular infection was then suspected. Pirquet's test gave a positive reaction. The discharge was examined by Dr. Bernstein who reported the presence of typical tubercle bacilli. In the latter part of February the enlarged and partly suppurating glands were removed under chloroform. Some of them were adherent and brittle and had to be removed with the curette. A chain of glands situated near the large vessels were also removed in toto. Dr. Bernstein reported that sections of the glands showed tubercular giant cells, with areas of cheesy degeneration. Tubercle bacilli were also detected by the usual methods. The child was well-fed, weighed

19½ pounds, looked rosy and happy; this was a living refutation that tuberculosis in infancy led to cachexia and marasmus. The temperature was normal and also the thoracic organs although a few rales could be heard over the lungs. The spleen was still slightly enlarged and while there was still a deep sinus in the left inguinal region, it was gradually filling up with healthy granulations. It appeared from a study of inoculation tuberculosis following ritual circumcision reported in current literature that they were frequently looked upon as syphilitic and valuable time was lost while employing specific remedies. It was important to make a careful diagnosis on account of the tendency of tuberculosis in infancy to become generalized, and this could easily be done by means of the microscope and newer methods of examinations. The prognosis of the case was dubious if one considered the great disposition to selection so characteristic of tuberculosis in infants. The outcome would depend on whether the process had been confined to the inguinal lymphatic glands or whether it had progressed to distant organs. Literature seemed to indicate that cases in whom recovery had apparently taken place afterward developed fatal tuberculous lesions. As Dr. Knopf had recently suggested only persons who had shown the necessary skill before a medical board of examiners should be allowed to perform circumcision and that they should submit themselves to a medical examination every time they were called upon to perform this rite. Dr. Willy Meyer believed with Prof. Maas that it was the duty of physicians to protest against ritual circumcision.

Dr. Henry Koplik said that while these cases of inoculation tuberculosis occurred occasionally they were becoming more and more rare as the gentlemen who performed this rite became more enlightened. The men who performed this rite in New York city were as a rule careful and did their work with the necessary surgical precautions. While Dr. Koplik was in charge of the Good Samaritan Hospital and Dispensary he saw many of these cases and they were properly diagnosed as tuberculous. Dr. Koplik recalled a case that he had seen with Dr. Ware where the child had but little constitutional disturbance and a slight

cachexia. The cachexia usually appeared later and these children as a rule went to the wall, developing other forms of tuberculosis. Among the cases that he had seen the earliest appeared three months after circumcision.

Dr. Charles Goodman said that the danger of the ritual circumcision laid in the old traditional custom of practicing the *mezizah*, or act of sucking, after the prepuce had been divided, a compulsory enforcement in the rite as described in the *Camara* written by Rev. Rav. Pope in the Fifth Century and later in the *Beth Joseph* written by Joseph Karo and by Maimonedge, a physician of the Twelfth Century. The purpose of the *mezizah* was not definitely understood, but was emphatically explained by the Hebrew writers as being hemostatic and styptic; by others, as having a cleansing action, preventing inflammation of the wound. The dangers of this practice had been brought to the attention of other countries. In 1845 the French government permitted only Mohels properly qualified by instruction to perform circumcision, and at the same time abolished the suction part of the rite. In German Austria, and in other countries, the *mezizah* was performed with the aid of a cupping glass, thus permitting of all the traditions of the ritual of circumcision without the danger of infecting the infant. A case of syphilitic infection was reported in 1811 by Krakow. In the early years of Dr. Goodman's practice he insisted upon having the Mohel brought to his office; here he gave instructions and admonished them from doing suction without the circumcision glass. The licensing of only competent and properly instructed Mohels would do away with the dangers to the innocent offspring.

Dr. Martin W. Ware said that after a period of incubation of four weeks, the glands enlarged and the lesion would assume the characteristic appearance of a tuberculous sore, thus coinciding with the first appearance of the luetic adenopathy; the sore could pass for either one of lues or tuberculosis, thus rendering the clinical diagnosis somewhat difficult. The condition appeared to be on the wane. At such a tender age the glands were found to be extensively involved, and the removal of them constituted a capital operation: after operation for tuberculous adenitis, the

children did badly. Dr. Ware reported an interesting case of a child with inoculation tuberculosis of the lobule of the ear, due to piercing the ear with a needle and thread, after the thread had been moistened by the saliva of a tuberculous nurse.

A CASE OF DIABETES IN A BOY, TEN YEARS OLD.

—Dr. Henry Heiman presented this patient. The trouble began five months ago with thirst, increased appetite, increased frequency in urination, and loss of weight. The urine had a specific gravity of 1032, the daily amount passed was 5,700 c. c., and sugar amounted to 285.0 in twenty-four hours. There were a few small hyaline, finely and coarsely granular casts and some epithelial cells. When Dr. Rudisch was requested to assume charge of the patient, he ordered a diet which represented proteids, 88.65, carbohydrates, 29.72, and fats, 114.12, representing a caloric value of 1633.0. Atropine methylbromide was first given and then the sulphate was substituted. Today the boy was caring for 105 grams of bread daily and without any disturbance in the sugar metabolism. What the ultimate outcome could be in this case Dr. Heiman would not state. The boy had gained in weight, and the sugar had disappeared entirely from the urine.

Dr. Rudisch said this case was of particular interest because of the age of the patient; in such persons the prognosis was usually considered very unfavorable. This child of ten years, with diacetic and oxybutyric acids in the urine, taking carbohydrates all the time at home, he continued on a limited diet of carbohydrates, but the diacetic acid would not disappear from the urine. In such cases all authorities agreed that a certain amount of sugar was indicated; therefore, he gave the child fruit, hoping that the levulose contained therein would not be as deleterious as starch or dextrose. He then gave the patient an absolutely strict diet of proteids, including meats, fish, and such vegetables as contained small quantities of starch, especially cabbage. To satisfy the boy's hunger, quantities of cabbage and other bulky vegetables were given. The boy's stomach must be kept full, or he would complain. Under this diet the diacetic and oxybutyric acids disappeared from the urine proving that the

presence of these acids was not always a contra-indication to a strict proteid diet, contrary to the opinions of most authorities. A little fat in the form of oil, not butter, was given. From his experience, he had found that one could decrease the amount of sugar excreted, and increase the tolerance for carbohydrates more rapidly, by the administration of atropine salts combined with diet, than with diet alone. Sulphate of atropine should be given, commencing with small doses, and increased very slowly. The polyuria in the patient presented by Dr. Heiman had diminished, and he was passing now 2,000 c. c. of urine daily, whereas he was passing 5,000 c. c. before treatment was instituted. The prognosis in these cases was dubious, and the treatment must cover a long period of time. These patients should be kept where they could be watched with care, because they would use every means to obtain crackers, bread and the like surreptitiously.

PNEUMONIA: A BEDSIDE AND LABORATORY STUDY.—Dr. Augustus Wadsworth presented this paper. He said that he had found the study of experimental pneumonia very interesting and instructive. Other organisms besides the pneumococcus had been found as incitants of pneumonic infection, but with improved technique and more extended study of the cases at autopsy, the importance of the pneumococcus had been more and more fully disclosed. Streptococci as primary incitants of lesions were less frequently found except in certain of the so-called secondary pneumonias of the exanthemata. Both streptococci and pneumococci were found in lung lesions; when the etiology was thus obscured precedence as a primary incitant should be given to the pneumococcus. Friedlander's bacillus was now thought to be more often a secondary or complicating, than a primary incitant of the disease. Dr. Wadsworth said that in 1902 he had begun his researches designed to determine the effect of cultures of pneumococci of known but varying grades of virulence, when introduced under the skin, into the ear vein and through the trachea into the lung. These inoculations were made in normal rabbits, in rabbits predisposed systematically by poisoning with phenylhydrazin, in rabbits predisposed locally

by injury to the lung through exposure to cold, and as result of the introduction of foreign material directly into the lung and finally, in rabbits predisposed both locally and systematically. He had observed the following results: Subcutaneous and intravenous inoculations were harmless with cultures of inadequate virulence, or with virulent cultures the results were fatal from either quick or prolonged bacteriemia. In these experiments significant lung lesions never developed. Endotracheal inoculations alone gave rise to lesions comparable to pneumonia in man, but these varied greatly. Cultures which proved fatal when introduced under the skin or in the vein, frequently proved harmless when introduced through the trachea. Predisposition accelerated the development of the infection and its course. With virulent cultures the lung changes were less in extent and the bacteriemias were rapidly fatal. Broncho-pneumonic types of reaction only were obtained when virulent cultures were used. Extensive lesions of the lobar type were obtained only when both the general system and the lungs were predisposed, and organisms of very low, but sufficient virulence were introduced through the trachea; this balance of conditions was secured only with difficulty in the normal or predisposed rabbits. In order to secure exact experimental conditions extremely virulent cultures of the pneumococcus were introduced through the trachea of the rabbit already partially immunized to this organism. Under these conditions extensive lesions, comparable to the diffuse pneumonias of man were more often obtained. Experiments with the dog, which is naturally less susceptible to the pneumococcus, supported very strikingly these observations. By means of systemic study with controlled conditions that would admit of accurate and significant comparison it was possible to interpret the results of previous researches and to suggest with reasonable precision the subtle balance of conditions of bacterial virulence and tissue susceptibility underlying the different types of pneumococcus infection in man. Reactions of the bronchial type developed more frequently in conditions of greater susceptibility, while the lobar type occurred in conditions of lesser susceptibility or greater resistance. Examination of the blood

had revealed the presence of the pneumococci and suggested that bacteriemia occurred in all stages of the disease and was possibly a constant factor in all cases. The finding of the bacteria in the blood proved that bacteriemia was an essential part of the disease, and not that lung lesions were due to them. Man constituted the chief source of the pneumococci but streptococci were to be found everywhere. Virulent pneumococci were found in the mouths of from 20 to 30 per cent. of the inhabitants of our cities. Under the auspices of the Commission for the Investigation of Acute Respiratory Diseases, appointed by the Board of Health of New York City, Dr. Wadsworth had taken up the problem of mouth disinfection in the prophylaxis and treatment of pneumonia. Complete disinfection of the mouth proved impracticable. This conclusion had been reached by almost every student of the problem. A mouth wash should be bland, non-irritating, isotonic, slightly alkaline, should diffuse readily with the secretions and cleanse the mucous membrane. It should possess disinfecting properties as well. The only solution which fulfilled these conditions to any satisfactory degree was one containing 20 to 30 per cent. alcohol, 5 to 10 per cent. water, salts and flavoring oils. At present attention could only be directed to decent care in coughing and sneezing, reasonable isolation of the sick and the hygiene of the mouth and pharynx and the care of these secretions. Experience had tempered the concern caused by extensive lung involvement, except where there was mechanical interference with respiration endangering life; the serious signs and manifestations of the disease were not referable to the lung. The serious respiratory signs were those due to failure of the circulation. At autopsy the fact was revealed that despite the large amount of exudate in the inflammatory processes the pneumococci were rarely numerous. Laboratory and bedside experience suggested that virulent pneumococci gaining access to the lung and there finding conditions favorable, developed with astonishing rapidity inciting inflammatory exudative reaction and elaborating toxic products which were rapidly diffused. Involvement of the general system then ensued; the onset of the disease was evidenced by rise of tempera-

ture and chill. The eosinophiles disappeared during the febrile period, returning just before the crisis or with it. Agglutination reaction varied just as in other diseases. The heroic measures of clinicians at the bedside failing to yield satisfactory results attention in recent years had turned to the laboratory and to the student of immunity and serum therapy. An antitoxin was first sought, but in the absence of a toxin this was impossible. The use of watery extracts of leucocytes obtained from aleuronat pleurisies of the rabbit had been advocated but in his experience this prolonged the course of the experiment and might save the animal, but only in infections of not too great virulence. To meet the indications obtaining in individual cases and to avoid the adoption of those measures which might interfere with the development of the immunity upon which recovery ultimately depended was no light task. One often hesitated and when in doubt it was best to do nothing; or as Dr. Northrup wisely said, open the window and feed the patient properly. Drugs were to be avoided except in the correction of errors of circulation or digestion, or for the comfort of the patient. The clinician and the research worker were mutually indebted to one another for much that was valuable in their several studies of pneumonia. Clinical data lent its practical suggestions to laboratory work, often serving to check useless effort and clearing the imagination of the vagaries to which theory was prone to fall a victim.

Dr. David Bovaird, Jr., said that the vital statistics of pneumonia showed that it was one of the acute infectious diseases which was not under control at the present time. The vital statistics of England for ten years showed that the number of deaths from contagious diseases had remarkably diminished, but that the number of fatal cases of pneumonia showed an increase. On the Isthmus of Panama pneumonia was the one disease that gave the greatest fatality. Greater importance should be given to the bacterial infection of the blood; these patients suffered from bacteriemia, rather than from consolidation of the lungs. On the one hand, children or elderly persons were seen with extensive consolidation of the lungs, who scarcely considered them-

selves sick and presented no evidences of serious illness. On the other hand, they met from time to time an individual in excellent health, very strong, taken down with a pneumonic process in which the extent of the pneumonia was slight; yet such a patient would become deathly sick and die of the pneumonic infection. Clinical and pathological observation also showed that death from an uncomplicated pneumonia was really a rare occurrence. On the autopsy table there would be found other lesions than pneumonic, such as an endocarditis, or a secondary invasion of the pneumococcus in the form of an extensive pleurisy or pericarditis, or meningitis, etc. The point that impressed itself upon him was that, given a pure lobar pneumonia, uncomplicated, one would expect the patient to recover. On the other hand, the fatal cases showed some additional invasion of the pneumococcus.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section on Pediatrics.

STATED MEETING, FEBRUARY 19, 1909.

DR. JOHN W. PARRISH, CHAIRMAN.

PAPER—ADENECTOMY AND TONSILLECTOMY, BY WALTER D. LUDLUM, M. D. (SEE PAGE 210.)

DISCUSSION OF DR. LUDLUM'S PAPER.

DR. PURDY H. STURGES praised Dr. Ludlum's paper. He emphasized the fact that adenectomy is done badly by so many men; it is an operation that requires skill and care. Complete enucleation of the tonsil is an operation which takes from ten to fifteen minutes; first the anterior pillar of the fauces must be separated from the tonsil with a curved knife; then the posterior pillar must be separated (this is a very difficult procedure) then the tonsil is pulled out with a tenaculum and *excised* with a curved bistoury, all the way down to the constrictor muscle, thus removing the tonsil and its capsule. The wisdom of such thorough removal is open to question. If our conception of the tonsil as a sort of sentinel of the body is correct, if its purpose is to filter the germs so that no harmful ones shall reach the circulation, we should certainly leave a portion of this important organ to fulfill its functions. Accordingly, we should never remove a tonsil completely in children under eight. As to the position of the patient, the prone position is said to give more bleeding and to set up an acute ear inflammation more readily than the upright position. Dr. Sturges believes this is true as regards the bleeding, but not as to the tendency to ear inflammation. Chloroform can be used, though ether is generally preferred. For the prevention of hemorrhage, lactate of calcium for twenty-four hours before the operation is useful, given in several doses. After the operation, the patient should be laid on the side, in a sort of Sims' position, so that any blood will flow out of the mouth where it will be seen, instead of being swallowed. In this way, a hemorrhage is discovered at the start. The pulse should be counted frequently, so as to detect collapse from concealed hemorrhage. The proper tonsils for thorough

enucleation are the compact tonsils; do not attempt to get out all the lymphatic tissue in the wide, spread out tonsils. The results of adenectomy and tonsillectomy are among the most brilliant in surgery, if we consider the great change which takes place in the child's mental and physical makeup.

DR. PARRISH said that his acquaintances among laryngologists were still divided as to whether to use the tonsillotome or to do tonsillectomy. The tonsils must serve some purpose. It does not seem rational to take them out just because they are large. We must do so only when they give symptoms.

DR. SMITH said that tonsils and adenoids that give symptoms should be removed; not those that give no symptoms, no matter how large they may be. The position which Dr. Smith uses in these operations, is to place the patient on the side with the back of the head elevated, so that the blood flows out of the mouth. Remove the uppermost tonsil first. Calcium lactate is of use in preventing hemorrhage and it can be given for two or three weeks or longer without bad results.

DR. BECK asked why ether is so much preferred to chloroform in these operations; he also asked the treatment of post-operative hemorrhage, and the usefulness of adrenalin.

DR. NORTHRIDGE has used ethyl chloride as an anaesthetic in these cases. He believes in leaving *some* of the tonsil always.

DR. SPINGARN asked whether there was greater liability to various infections after one of these operations.

DR. LUDLUM, in closing said that if an enlarged tonsil is a pathological tonsil and a source of infection, it ought to come out. Adrenalin is of no use internally, but acts as a hemostatic locally. Peroxide of hydrogen is more useful, however. Ether is a stimulant to the heart, chloroform is a depressant; hence ether is safer in these cases. Hemorrhage can be controlled by pressure usually; the post nasal space can be packed with gauze if the bleeding comes from pharynx; bleeding from the site of the tonsils is controlled by pressure with gauze held in sponge forceps, or by special forceps which apply pressure on the outside of the neck and within the mouth at the same time. Children are especially susceptible to all kinds of infection for a few days after the removal of tonsils.

CHICAGO PEDIATRIC SOCIETY.

STATED MEETING HELD FEBRUARY 16, 1909.

I. A. ABT, PRESIDENT.

The papers of the evening were:

- I. REPORT AND CASE OF SPINA BIFIDA, BY DR. W. P. CURTIS.
(See page 215.)
2. REPORT AND CASE OF ARTHRITIS DEFORMANS IN A CHILD, BY
DR. A. S. HERSHFELD. (See page 219.)
3. THE TECHNIQUE OF INFANT FEEDING ACCORDING TO FINKEL-
STEIN, BY DR. E. L. LACKNER.

DISCUSSION ON SPINA BIFIDA.

DR. CUBBINS discussing the surgical side of the question, said that this tumor was the size of a cocoa-nut and purplish in color; it transmitted light and the fontanelle fluctuated when the tumor was pressed. It was attached by a broad base three inches by two and a half at the base of triangle. The covering of the upper half was of epithelio-seroso and fused with the normal skin about midway between the base and the apex. It was tender to pressure and did not present any ulceration.

The indications for operation were a rapid increase in the size of the veins of the membrane and the danger of rupture, meningitis, etc.

The operation consisted of a lateral incision in the longitudinal axis of the body joint to the sub-arachnoid space, from which a large amount of fluid escaped. This membrane was separated from the outer membrane and joined to the epithelial line. An opening was then made in the arachnoid, which allowed the cerebrospinal fluid to slowly escape. During this the child gave no sign of discomfort. The arachnoid was then opened and the cord or cauda was observed going over its vault, about eight inches long. The cauda was now separated from this membrane and the opening in the spinal canal inspected. A small opening was

revealed at the first sacral vertebra, not larger than a silver nickel. Since it was impossible to restore the elongated cauda into this small opening, it was placed as carefully as possible in a folded condition over it and covered with a layer of arachnoid. Then the lateral tissues were dissected to expose the lumbar fascia, from which two flaps were dissected up and brought together with firm catgut suture. Next another layer of the arachnoid was sutured in and the skin closed with subcutaneous catgut. All of the epithelial serous membrane was removed. The wound was dressed carefully with an adhesive plaster to keep out moisture. The child was put to bed and every effort made to keep the wound clean. No fluid escaped. There were a few pressure symptoms for two or three days, when the eyes were prominent and the child was very fretful; but aside from that no change was noticed. After ten days there was a slight separation in the upper end of the wound which healed rapidly and caused the child no disturbance, evidently having been subcutaneous. A bilateral paralysis of the dorsal extensors of the foot has developed since the operation.

Dr. Cubbins, answering Dr. Abt's question as to the indication for operation, said that the main indication for operation is the high mortality, which reaches ninety-five per cent. for the first five years if there is no interference. The operative mortality, although high, is better as it reaches only seventy-five per cent.; and this can be reduced in two ways. The first is, prompt operation, when the tumor is small and the cord has not been so stretched as in the instance cited, when it was necessary to crumple up and disarrange the nerve tissue. And the second is perfection of technique, both in the repair of the defect and in an early operation for symptoms of hydrocephalus, which so frequently follow an operation and last only for two or three days; this can be avoided by frequent lumbar puncture after which the hydrocephalic tendency quickly disappears in a large percentage of cases. Mr. Lane of Guy's Hospital and the Children's Hospital, London, in his work on cleft palate in very young children, has demonstrated that they are far more capable of enduring trauma than has been supposed and Dr. Cubbins

believes that the facts demonstrated in regard to cleft palate will hold true in this trouble, because there is no doubt but that with the size of the tumor the difficulty increases both from an operative standpoint and from a symptomatic standpoint.

DR. GRULEE did not regard spina bifida as an indication for operation. Some victims of the trouble undoubtedly recover without surgical interference. He mentioned the case of a young woman twenty-five years old who had spina bifida of the dorsal rib and did not have any special trouble with it. He had seen a number of cases of this sort and had never advised operation.

DISCUSSION OF ARTHRITIS DEFORMANS.

DR. ABT said that several of these cases have come under his observation; both the common type and the Geo. F. Still variety. The latter is characterized by enlarged and deformed joints, with swollen lymph nodes and usually enlarged spleen. Muscular atrophy not infrequently follows both varieties. These cases frequently give the history of exposure to cold and dampness. Some English authors have suggested that the disease be called rheumatoid arthritis in preference to arthritis deformans. As one looks at this patient the impression is received that there may be some trophic disturbance. Some of the students of this disease have maintained that the joint changes and muscular dystrophies which have been noted depend upon degenerative processes in the nerve trunks or roots. In the case before us muscular atrophy is marked:—is symmetrical in its distribution and proceeds with a marked regularity—involving homologous fingers and joints at about the same place. Thus the changes in the distal phalangeal joint on one hand correspond almost exactly to the change in the same joint on the opposite side. It is noteworthy, too, that Heberden's nodes have been seldom noted in these juvenile cases.

DR. ERNEST LACKNER read a translation of Finkelstein's article on the technique of artificial feeding: Before a system of artificial feeding is adopted whether it is of positive value to nurslings and the new born must be ascertained. If this is true, the food may usually be regarded as suitable. The suitability

of the food is, of course, the basis of artificial feeding. The food must also serve for long continued use, with favorable effects that do not subside; and the proper influence on growth and development of the normal functions as well as on the weight.

Whole milk is not well borne by young nurslings, and to overcome this defect, must be diluted. Milk should be diluted about one-third by volume. If the milk is greatly diluted, too large a volume must be used in feeding. Mother's milk contains a large proportion of fat, but in cow's milk an equal percentage of fats gives rise to various dyspeptic troubles, a fact which shows that nurslings cannot digest fats of cow's milk and do better with low percentages. Finkelstein never uses more than a two per cent. of fat, particularly the first six weeks. If the stools give a strong acid reaction, are of thin consistence, more than three times a day, and show on microscopical examination an unusual quantity of fatty drops and fatty acid needles, trouble may well be apprehended. It is pretty generally established that the use of carbohydrates saves the proteid waste much more than the fats. Sugar and flour are the two carbohydrates to be considered. There are milk sugar, cane or beet sugar and maltose. Milk sugar chiefly is employed, but experiments on children show that for its working power it stands at the bottom of the list. This inferiority is revealed in many children by their slow increase in weight. Its choice, however, is still justified by the facts that in large doses it does not give rise to diarrhoeas and in abnormally large doses is comparatively harmless. To facilitate an increase in weight flour can be added in small quantities. Jacobi's choice of cane sugar or beet sugar does not so well answer the purposes because it is then difficult to pass on to a mixed diet, on account of the sweetness of the sugar. Given in large quantities it is likely to cause diarrhoea. This is true also of maltose, which is besides, expensive. Maltose is the sugar formed from flour and can be given in the form of Liebig's or Keller's Malt soup.

Too much sugar of any kind is as dangerous as too much fat; for it can produce violent choleriform diarrhoea with severe sys-

temic symptoms or threaten the gradual development of chronic disturbances in metabolism, which are observed when too much flour is used.

Flour is a valuable adjunct in feeding when properly given. If given too early, the results are gratifying at first but they are only transitory. A diet rich in starch causes chronic catarrh of intestines, enteritis, or atrophy. Exclusive starch diet is dangerous but to argue from this that smaller percentages cannot be given is shallow. Numberless children have been fed on mixtures of gruels and flour with the best results; Jacobi, Epstein, Schmid, Monard, Czerny, Kellar, Neumann, Heubner all recommend the addition of starch and Finkelstein cites his personal experience that flour added to milk feeding is not only allowed, but is to be highly recommended, not only for older children, but also for nurslings of an early period. As food to be long continued, milk and flour mixtures promise the greatest success. The addition of flour to milk food does not produce the constitutional symptoms that frequently follow milk feeding and in cases of spasmophilie diathesis they often exert a prophylactic influence.

On the whole, the milk flour mixture is the most successful method of artificial feeding for healthy children that is known. Careful observation of the stools will regulate the mixture to be given. Stools must be of a pasty, even consistency or like a thick jelly gruel. They should not have a strong sour reaction and, when a few drops of iodine are added, should give a light violet or pale blue reaction, never dark blue.

As to buttermilk, Finkelstein's experience over a period of years allows him to make the following statement: the original prescription contains too much flour, there is danger of over-feeding. This danger can be excluded by reducing the sugar content and substituting a small quantity of fat. A formula much used:

900 cm. buttermilk

100 cm. 10% cream

50 cm. sugar of milk or instead 5-15 flour—30-40 sugar.

This food has served not only for weak and sickly children but in premature children also has produced certain results in

many cases, marvellous ones. Buttermilk is advised for children who do not thrive on milk-flour mixtures. It is well, however, not to prolong its use over six weeks, but to return to milk and flour.

DR. ABT agreed with the previous speaker. He declared that in both teaching and practice of pediatrics dogmatism in infantile dietetics had no place. Every one of experience knows that no one plan of artificial feeding is of universal application—nor is any one plan or method sufficiently elastic to meet the varying difficulties which are encountered. We should not forget the experiences which have already been made and recorded. We should maintain a historical consciousness if all the clinical experience of the past is not to be lost. There is much to be learned—new principles are being continually evolved—we should be openminded and receive them and apply them—underlying principles should be mastered and taught to students. He succeeds best with infant feeding who understands principles and is resourceful in methods. The man who is wedded to one method and teaches it exclusively is too dogmatic in the present status of our knowledge of this subject.

DR. CHENEY thought that such papers as Dr. Lackner's were timely because they emphasized the value of the German ideas of infant feeding. But it is interesting to note the papers that have been read during the last few years on the subject of infant feeding in this country and to see how some of these German ideas are being gradually adopted, especially those advanced by Finkelstein and some other German authorities. We are coming to recognize that there is more danger in the fats or cream of cow's milk than we have been taught in former years, also that there is less danger and trouble with the proteids or casein of cow's milk when properly given.

PEDIATRICS

FREDERIC W. LOUGHRAN, M. D., Editor

*Published Monthly by F. M. Crossett Co., Inc., Burlington, Vt., and 30
West 33rd St., New York.*

Telephone, 781 Madison.

Editorial Office: 742 Prospect Avenue, New York City.

Telephone, 607 Melrose.

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EDITORIAL.

PRELIMINARY PROGRAM

(Subject to change.)

OF THE MEETING OF THE ASSOCIATION OF AMERI-
CAN TEACHERS OF THE DISEASES OF
CHILDREN.

To be held at Atlantic City, June 7, 1909.

Address of the President, Dr. Charles Douglas, Prof. Diseases
of Children, Detroit College of Medicine, Detroit, Mich.

Address, "The Maintenance and Management of Children's Hos-
pitals," Mr. J. Ross Robertson, Chairman Board of Trustees,
Hospital for Sick Children, Toronto, Canada.

"The Modern Physician and His Literature," Dr. LeGrand Kerr, Prof. Diseases of Children, Brooklyn Post Graduate School, Brooklyn, N. Y.

Paper, Dr. Charles Wright, Instructor in Pediatrics, University of Minnesota, Minneapolis, Minn.

"Personal Relations of Teacher and Student," Dr. Edward J. Wyncoop, Associate Prof. of Pediatrics, College of Medicine, Syracuse University, Syracuse, N. Y.

"The Place of the Lecture in the Teaching of Pediatrics," Dr. E. W. Mitchell, Prof. of Diseases of Children, Miami Medical College, Cincinnati, O.

"Neurasthenia in Infancy and Childhood," Dr. E. H. Bartley, Prof. of Chemistry, Toxicology and Pediatrics, Long Island College Hospital, Brooklyn, N. Y.

"The Mentally Deficient Child in School, a Victim of Educational Methods and Incompetent Boards, Dr. H. Brooker Mills, Clinical Prof. of Pediatrics, Medico-Chirurgical College, Philadelphia, Pa.

Report of the Committee on the Teaching of Pediatrics, S. W. Kelley, Cleveland College of Physicians; A. C. Cotton, Rush Medical College, Chicago, Ill.; H. M. McClanahan, University of Nebraska, Omaha; W. C. Hollopeter, Medico-Chirug. College, Philadelphia, Pa.; W. W. Butterworth, Tulane University, New Orleans, La.

SYMPOSIUM ON "HOW SHOULD THE SUBJECT OF INFANT FEEDING BE TAUGHT?"

(Five minute to ten minute papers.)

- (1) "What percentage of the whole number of hours in the Pediatric Course should be devoted to infant feeding, and into what main headings should the subject be divided?" Dr. John Zahorsky, Clinical Prof. Diseases of Children, Medical Dept., Washington University, St. Louis, Mo.
- (2) "Should infant feeding be taught by dogmatic elucidation of one method?" Dr. Isaac A. Abt, Associate Prof. Diseases of Children, Rush Medical College, Chicago, Ill.
- (3) "How should the percentage method of milk modification be taught?" Dr. J. Finley Bell, Visiting Physician Englewood Hospital, Englewood, N. J.

Discussion opened by Dr. H. Brooker Mills, Clinical Prof. of Pediatrics, Medico-Chirurg. College, Philadelphia, Pa.

- (4) "What should be taught concerning the calorimetric method, for practical use?" Dr. J. Warren Van Derslice, Instructor in Pediatrics, Rush Medical College, Chicago, Ill.

Discussion opened by Dr. Frank H. Lamb, Prof. of Physiology and Lecturer on Diseases of Children, Miami Medical College, Cincinnati, O.

- (5) "What should be taught concerning proprietary foods and condensed milk?"
- (6) "What are the best methods of instruction in the practical work of preparing foods and feeding?" Dr. Marcus P. Hatfield, Clinical Prof. Diseases of Children, College of Physicians and Surgeons, Chicago, Ill.
- (7) "What should be taught about mixed feeding?"
- (8) "What shall we teach concerning the feeding of difficult cases?"

AMERICAN MEDICAL EDITORS' ASSOCIATION.

The coming meeting of this Association to be held at the Marlborough-Blenheim Hotel, Atlantic City, June 5th and 7th. celebrates its 40th Anniversary and an unusual programme has been prepared for the occasion.

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ABSTRACTS.

Acute Poliomyelitis (Infantile Paralysis).—By Dr. H. Campbell Thomson (*The Practitioner*, August, 1908, p. 295). With a better understanding of the morbid anatomy of this disease, the term “infantile paralysis” gradually became to a large extent, displaced by that of “acute anterior poliomyelitis;” while this latter, again, in its turn, has given way to the more comprehensive title of “acute poliomyelitis.”

The first-mentioned term, viz., that of “infantile paralysis” or “infantile spinal paralysis,” as it has been variously styled, is obviously too limited a designation, since the disease is by no means confined to childhood. This latter fact has been recently emphasized by Farquhar Buzzard in his Goulstonian Lectures on “Acute Infective or Toxic Conditions of the Nervous System,” in which he shows that on taking at random, from literature, 25 undoubted acute examples of this disease, 15 cases occurred under and 10 over the age of 20. These figures as he states, are calculated somewhat to surprise those who are in the habit of regarding this affection only as one of early childhood.

From observations of epidemics and of the general symptoms which accompany an attack, the infective nature of acute poliomyelitis has long been suspected, though the exact nature of the infective agent or agents has hitherto been, and still is, a matter of great uncertainty.

An important addition to the bacteriological aspect of the question has lately been made in a paper embodying an account of some investigations carried on at the Middlesex Hospital by Dr. W. Pasteur, Mr. A. G. R. Foulerton, and Mr. H. MacCormac, in which a case of acute poliomyelitis was found to be associated with a diplococcal infection of the spinal sac. The symptoms and progress of the case, which was that of a boy aged 13 years,

were, from a clinical point of view, in accordance with the recognized features of acute poliomyelitis, though there were some points especially worthy of notice, as, for instance, the paralysis of the diaphragm and of many muscles of the trunk. For a time the patient seemed in great danger of losing his life, but the subsidence of fever was followed by a general improvement in health, and, later on, by some degree of recovery of power, though the patient remains entirely crippled so far as any use in the lower limbs is concerned.

Bacteriological Examination of the Cerebrospinal Fluid.—Four specimens of the cerebrospinal fluid were obtained from this case. When withdrawn the fluid looked quite clear, but, after standing a little while, greyish sediment collected which, on microscopical examination, proved to consist of lymphocytes. After centrifugalizing the fluid, a further examination showed that these deposits consisted entirely of mononuclear cells, and that there were no polymorphonuclear leucocytes to be seen, and, in this respect, the writers point out that their results resemble those obtained by Geirsvold in 12 cases taken from an epidemic of acute poliomyelitis which occurred in Norway in 1905.

In most of the cover-glass preparations, made from the two earlier specimens of fluid, a few widely scattered diplococci could be distinguished. In a few instances two pairs were grouped as tetrads. There was some indication of a capsule, but this was not so distinct as it was with the diplococci which were found in the cerebrospinal fluid of rabbits.

The diplococci were always found free in the fluid; no intracellular forms occurred. No culture of this diplococcus on artificial media could be obtained; media of every description were inoculated with the fluid, and incubated both aerobically and anaerobically, but in no instance was growth of any kind obtained.

Rabbits were inoculated intracranially with the fluid and, in three instances, the diplococcus was found in the cerebrospinal fluid on the 22d, 50th, and 53d days after injection and, in two of these instances, the rabbits became partially paralyzed on the 52d and 49th days after inoculation. Unfortu-

nately no complete histological examination of the cords of these paralyzed rabbits was made.

In summing up the evidence concerning the infective nature of acute poliomyelitis, these authors consider that Geirsvold's investigations show that a specific disease exists of which acute poliomyelitis is a frequent and prominent, though not essential, feature, and they consider that the instance they have recorded represents a sporadic case of the disease of which Geirsvold observed an epidemic.

They do not, however, consider that there is sufficient evidence to assume that acute poliomyelitis is always the result of a particular diplococcus infection, but rather lean to the view that the symptoms may be produced by toxins of various natures, and, in support of this, they quote Trevelyan's observations on cases which followed immediately on such different infections as those of measles, typhoid fever, and acute rheumatic fever.—Post-Graduate, Sept., 1908.

Curvature of the Spine Responsible for Orthostatic Albuminuria.—(Archiv. für Kinderheilkunde, Stuttgart.)—Jehle announced a short time ago that he had found more or less curvature of the spine in all the cases of "orthostatic" albuminuria in his experience, and believed that the curvature was responsible for the albuminuria. This assumption was confirmed by the fact that he succeeded in inducing the "orthostatic" albuminuria in healthy children, previously free from any such tendency, by merely artificially inducing a curvature in the spine. When the children sit or recline, there is no lordosis and the kidneys functionate normally, but when they stand up, the weakness of the muscles causes the spine to curve in the lumbar region and the kidneys have to work under abnormal conditions on that account. If the muscles are strengthened or supported, the sole of the shoe made a little thicker or a supporting corset worn, the tendency to albuminuria is corrected. Nothmann states that he has witnessed the development of albuminuria in cases of progressing lordosis, and has also suc-

ceeded in inducing the production of albuminuria by artificially induced lordosis. He reports a number of cases of children convalescing from scarlet fever with traces of kidney disturbance; in all such cases albuminuria promptly followed when the spine was artificially incurved. In another series of scarlet fever children it was impossible to elicit albuminuria by the artificial lordosis, and the kidneys of these children at the time and later have always been apparently absolutely healthy. He has been experimenting on rabbits and on the cadaver to see the effect on the kidneys of curvature of the lumbar spine, and has found that the incurved vertebræ protrude into the space between the kidneys, push them apart and twist them around on the vertical axis, amply explaining the disturbances in circulation evidently responsible for the albuminuria. He thinks it should properly be called "lordotic albuminuria" instead of "orthostatic." If the kidney is at all pathologic, albuminuria is more readily induced than in a sound organ.

Psychotherapy in Children.— (Boston Medical and Surgical Journal, Feb. 11, 1909). Eastman calls attention to the fact that childhood is the most suggestive period of life and that from early infancy the child is influenced by suggestion. First come the suggestions of external stimuli through the senses, then the suggestion of obedience to certain routine, necessary functions imposed on the infant for his physical development and, finally as speech develops come the innumerable suggestions picked up from the conversation of the child's associates. The older a child grows the more firmly fixed become the habits of both thought and action. Hence, if suggestion can change habits fully developed in an adult, how much easier, says Eastman, to change and model the mind into correct thoughts and actions during this plastic stage of childhood. Eastman divides childhood into three periods, viz., infancy and early childhood, from birth until the age of 5; early school life, from 5 to 10 years of age; early adolescence, from 10 to 15 years of age. At birth, the child is a little animal, instinctively eating and sleeping, oblivious to outside influences. At the age of 5 he has be-

come a human being, so to speak, has learned the first lessons in obedience, and has formed both good and bad habits. His mind is fully alive to his small world and he absorbs more knowledge in twenty-four hours than we can appreciate. During this first period Eastman states that the best time to use suggestion is just after the child has gone to sleep; if this is impossible it may be used during sound sleep. The child should be addressed in a firm natural voice and the suggestion repeated several times; only one suggestion should be used at a time in order to avoid confusing the child. Eastman cites several cases illustrative of the good accomplished by suggestion in children during this age period. In the second age period suggestion is especially adapted to the cure of nervous conditions resulting from too close confinement and too keen competition in school. In both these periods he also advocates "negative suggestion"; in other words, ignoring a symptom is often the best method of teaching the child to overcome it. The third period brings the individual to the borderland between childhood and adult life and of course opens up a large field for therapeutic and educational suggestion.

Diagnosis and Treatment of Undescended Testicles.—(*Annales de Medicine et Chirurgie Infantites*, Jan. 1909.)—Villemain does not advocate operation on very young children free from complicating hernia or pain or when the testicle is in the abdomen or behind the peritoneum. On the other hand, he operates when there is concomitant hernia or pain as soon as the child has learned not to soil himself. There is little prospect after the age of 10 for spontaneous descent of the testicle. If the testicle slides into some other abnormal location intervention should not be delayed. Gentle, slow massage, frequently repeated, may sometimes force the testicle down into the scrotum. In case of failure, operative measures are indicated when the child is approaching the age of 10. The tendency to hernia must be corrected and the fibrous tissue retaining the testicle must be severed. The best way to retain the testicle in the scrotum is to unite it with the other testicle.

Then any attempt of one testicle to slide back upward is prevented by the other testicle as they reach the root of the penis. He has done this operation more than three hundred times since 1899, and the results have been very satisfactory. Of course the operation is unable to render functionally perfect a congenitally defective testicle, but in every case the pain and the nervous symptoms were abolished.

The Urine in Diseases of Infancy.—(N. Y. Med. Jour. Mch. 13, 1909).—Morse and Crothers give the results of the examination of urine of 667 babies at the Infant's Hospital and the Floating Hospital. The examination was usually made within the 48 hours after admission. Only 13 were suffering from diseases of the urinary tract not connected with other conditions. In this paper, the authors do not refer to the renal complications of diseases of the gastrointestinal tract, but discuss those of diseases of the respiratory tract, the nervous system, nutrition, and some unclassified conditions. Analysis of these cases shows that, putting aside diseases of the gastrointestinal tract, albuminuria and casts are more often found in pneumonia and meningitis than in other acute diseases in infancy. It does not corroborate the statements of Cassel and Simmonds as to the importance of otitis media in the etiology of nephritis in infancy, or those of many Italian and French authors as to the frequency of renal complications in eczema. It shows that the kidneys are not, as a rule, affected in the diseases of nutrition, although in scurvy and severe anemia the urine may show the evidences of the hemorrhagic tendency characteristic of these diseases. It also shows that affections of the kidneys secondary to other diseases in infancy do not usually produce edema, and conversely that edema in infancy is usually due to some other cause than disease of the kidneys.

The study of these cases seems to justify the conclusions that the presence of albumin and casts in the urine in the acute diseases of infancy is the manifestation of an unusual degree of toxemia and is, to a slight extent, of bad prognostic import.

However, many infants showing albuminuria and casts recovered and many others in whom the urine was normal did not. There was nothing about these cases to show that the renal condition had any direct influence on the fatal outcome; it was merely an index of the toxemia. So few pathologic examinations were made that no statement is justified as to the pathologic changes in the kidneys. It seems fair to assume from the changes in the urine, however, that in the vast majority of cases the pathologic condition did not go beyond an acute degenerative nephritis and that a definite parenchymatous or interstitial nephritis was very uncommon. It seems evident that febrile albuminuria and acute degenerative nephritis occur in the same conditions and at least as frequently in infancy as in childhood and adult life.

A Dressing Table for the Infant.— The easiest way to dress a baby is on a table. Have it made as high as a working-bench. The proportions are these: 38 inches high, 32 inches long, 22 inches wide, with a shelf 12 inches below the top, boxed in on three sides and either open in front or closed in with a drop or sliding door. All the toilet articles—such as boracic acid, alcohol, powder, vaseline, cotton—are kept on the shelf, always there and ready for use. The infant is lifted from the bathtub to the top of the table, which is padded with a blanket and covered with the towel; there it is dried and dressed with much ease and rapidity. A new packing-box can be adapted, though many of the young fathers are skillful enough to make the table.—M. Taylor, in *Nurses' Journal of the Pacific Coast*.

Frequency of Tuberculosis in Childhood.— (J. A. M. A. Feb. 27, 1909). Von Pirquet makes the following suggestions: All children are submitted to the cutaneous test. The following day they are inspected. Those showing a positive reaction are noted as belonging in the group of early reactions. A week

later those who showed no reaction are again tested and inspected a day later. If they then react, they are grouped in the class of secondary reactions. Those who have not reacted on either occasion can be considered as belonging to the non-reacting class. This method of testing requires about one hour for a hundred children and only half an hour is consumed in the inspecting process. Medical school officers could easily accomplish this at the opening of the schools in autumn. One forenoon would be sufficient for a school of from 400 to 600 children. As the test is absolutely harmless, there can be no objection to carrying out such valuable investigations.

Food Intoxication in Infancy.—(J. A. M. A. Feb. 29, 1909). Brennemann discusses the alimentary intoxication of infants. It is a metabolic intoxication caused by the giving of food which produces toxic products of an inadequate metabolism, which may lead to fatal consequences, but disappears when the food is withheld. Certain foods, however, give rise to these effects, and Brennemann insists on the importance of the fats and sugars in the infant's food. The proteids he considers comparatively harmless. The exact nature of the toxins is unknown. The condition is probably analogous to an acid intoxication, and the theory that it is due to alimentary rather than to bacterial toxins is supported by the absence of lesions in the alimentary canal, the absence of any microorganism associated with it, the ready cure by withdrawal of food, the widely different conditions with which it is associated, and the lack of putrefactive or fermentative products that are caused by bacterial activity within the intestines. The treatment is, therefore, indicated: The withdrawal of food will produce a normal temperature and absence of evident intoxication in from 24 to 72 hours. The child can be given plenty of water, sweetened with saccharin one grain to the quart; a little barley water is harmless or weak tea can be given, as is done so much in German clinics. When the baby is no longer toxic we can give a little skim milk—from 5 to 10 ounces in the barley water in the day's food. If this is well borne for a day or two one can

safely add a small amount of sugar and gradually increase it to the amount for a normal healthy child; but only after weeks or months can we safely begin to substitute whole milk under careful control and watched. The severer the case the slower must be the progress.

Fever in Children.—Cantley (London Medical Lancet) divides the cases of anomalous fever in children into two groups. The first and more numerous group includes all those in which no definite cause is found on examination, but data can be discovered for a probable diagnosis, which is more or less verified by the course of events. The second group is composed of those cases in which the most thorough investigation fails to reveal the cause of the fever. In most cases fever is due to the direct effect upon the nervous system and so on the heat regulating centres, of toxins produced in the tissues of the body, or in the food before or after ingestion, by micro-organisms or ferments. Feverish new born babies should be examined most carefully for evidence of sepsis, which may originate almost anywhere in the body. It is very improbable that teething is ever a direct cause of fever, but its complications may be so. Among them may be mentioned the bolting of food, local inflammation of the gums, inflammation of the mucous membrane of the mouth, etc. Many an anomalous temperature is due to inflammation of the throat. In acute follicular amygdalitis, or even in diphtheria, there may be no symptoms referable to the throat. The nasopharynx is a common site of infection. Chronically enlarged and pitted tonsils are a potent source of attacks of fever. In the absence of all other evidence one may have to fall back on the alimentary tract as the possible source of the fever. Carbohydrate fever is a name sometimes given to febrile attacks which are apparently the result of an excess of carbohydrate food and cured by strict limitation of the diet. The fever lasts from one to four days, and may reach 104 deg. F. In some cases there are incessant vomiting and constipation. Any of the infectious fevers in their early stages may

give rise to fever of uncertain origin. True influenza is often unrecognized and still more often diagnosticated on insufficient grounds. The abdominal type of influenza is often mistaken for appendicitis. The rheumatic poison may cause fever in children in many ways, myocarditis being a cause that is often overlooked. Pyelitis is a cause of fever that is very difficult of diagnosis. Female infants are especially liable to infection of the urinary tract by the *Bacillus coli*. In the bladder it gives rise to little or no fever, bacilluria, and sometimes mild cystitis. It is when the bacillus infects the pelvis of the kidney, causing pyelitis, that it gives rise to high fever, the cause of which is overlooked, as it is difficult to obtain the urine of female babies for examination. Nervous, excitable children are prone to irregular pyrexia on slight provocation. Undue exertion, chill, and insufficient clothing are sometimes to blame.—The Charlotte Medical Journal.

The Conditional Reflexes in Children.—(Jahrbuch für Kinderheilkunde, Berlin). Krasnogorski's article reviews what has been accomplished in Russia of late years in the study of the "conditional reflexes," especially at Pawlow's clinic. He has been studying them on children and describes the means by which he was able to record on the Marey drum the movements of the child's mouth and the swallowing movements—all expressions of reflex action in response to stimuli, such as the taste of honey, sound of a bell, tickling, etc. The mechanism of the conditional reflexes in children seems to be the same as in dogs, but the latter are more exact in their response to tones. It is impossible to induce the conditional reflexes during sleep, but study of them opens new horizons, he thinks, for research on the complex nervous phenomena in children, in their simplest form and by objective physiologic means.

Constitutional Eczema in Infants.—(Münchener medizinische Wochenschrift). Feer distinguishes between "milk crust" and diffuse dry eczema. The former yields readily as a rule to

regulation of the diet, restricting the proportion of milk to the minimum or suspending it altogether, giving instead flour gruel, strictly avoiding eggs and meat broths. A teaspoonful of uncooked fruit juice can be given occasionally to children four months old. As the child grows it requires a fruit and vegetable diet, the fruits and vegetables being strained through a sieve; no meat is given. The same measures also prove effectual in lichen scrofulosus, but the diffuse form of eczema without effusion is more rebellious. He does not advise local measures for the "milk crust," having observed after them febrile phenomena and even convulsions. He has even witnessed fatal heart failure and death in dyspnea with high fever and symptoms of intoxication. He has collected from the literature 30 such cases of sudden "eczema death," the underlying status lymphaticus predisposing both to infections and to sudden fatalities. In children with this constitutional anomaly, merely the rapid removal of crusts, the application of an irritating salve, a hot pack, subsidence of the eczema, etc., may entail a sudden fatality. He has had no experience with metastasis of the eczema, but has frequently noticed the subsidence of the eczema on the outbreak of asthmatic bronchitis, the two alternating. Local treatment of the eczema differs from that of adults only in the necessity for greater gentleness and caution.

Relapsing Scarletiform Desquamative Erythema.—(American Journal of Dermatology, March, 1909). This interesting disease which some years ago was summarily disposed of under the name of desquamative dermatitis has acquired a new interest since it was demonstrated to be an erythema. A late contribution on the subject has been made by G. Patges who describes a form of erythema that resembles scarlatina very much and which is diagnosed by some as scarlatina in recurrent cases. It is a relatively rare affection. In the three cases recorded by this author there were two attacks in one, three in another, and twenty in the third. Two were adults, the third being a boy of fourteen. The disease begins with malaise, chilly feelings, fatigue and some headache. The eruption oc-

curs over the entire body and resembles that observed in scarlatina. There are no sore throats and no decided fever, and there is generally no albumin in the urine. There is also an absence of ear symptoms. Desquamation begins in a day or two in the form of large plaques over the body. The eruption is preceded by a marked pruritus which is strong enough to prevent sleep. Often, there is a history of a previous attack, but none of contagion or infection. The desquamation differs from that of scarlatina in being in large plaques of tenaceous nature, and lasting for several weeks, with a persistence of the erythema. The cause of the disease is unknown; its general symptoms are in favor of an infection. Its evolution is benign and treatment has little effect. So far as the cause is concerned it has been ascribed to the internal use of quinine. In a few cases the attacks occurred at regular intervals with no possible cause that could be assigned for it.

Appendicitis During Childhood.—Appendicitis has been considered a graver and more fatal disease in children, not only by surgeons but also by pediatricists; this is due to the fact that appendicitis, like all other inflammations in children, undergoes suppuration much more quickly than in adults, and that the diagnosis is usually made much later, as children cannot localize the pain as readily; it is frequently considered a simple digestive disturbance. To help in the clearing up of the question of prognosis, W. NEUBERG (*Deut. Zeit. f. Chir.*, 1907, lxxxix, 375) has tabulated 82 cases from Kredel's clinic in Hanover, with the following results: There were 41 males and the same number of females; 9 were between one and five years of age, 32 between six and ten, and the remainder between eleven and fifteen. Abscess formation was noted in 21 cases, 19 of which were operated on, with one death; in the other two cases the abscess perforated into the bladder with recovery. Of 11 patients who developed peritonitis (in 7 the condition was diagnosticated before the operation), 10 were operated upon, with 9 deaths. Of 38 patients treated expectantly, 1 died, a

case of diffuse peritonitis, in which an operation was considered a hopeless undertaking. Of the 82 patients, 46 had been admitted to the hospital, and of these, 9 died, while of the 36 seen in private practice only 1 died. Light cases of appendicitis are frequently diagnosed as intestinal derangement in children, thus removing many cases from the statistics which would make the prognosis of the condition seem more favorable. The youngest patient with a circumscribed abscess was twenty-one months old; operation was followed by recovery. In 15 cases fecal concretions were noted. In 2 instances intestinal obstruction developed four weeks after the acute attack; the patients were respectively six and eight years old; both recovered after operation.—American Jour. of the Medical Sciences.

When Should an Operation be Performed for Strabismus, Squint or Cross-Eyes in Children and in Adults?— (Illinois Med. Journal, March, 1909). Aria Louis Derdiger, M. D. draws the following conclusions: "We have learned that strabismus depends upon some of the following causes:

First. It is an inability to bring the visual axes of both eyes simultaneously on the one point, the axis of vision of one or both eyes always deviating in a certain direction from the object looked at.

Second. It is on the one hand the result of errors of refraction equal or unequal in both eyes, an inequality of the meridional planes of the eyes.

Third. Or it may be due to imperfect innervation, weakness or paralysis of one or more of the extrinsic muscles.

Fourth. Convergent squint represents about 85 per cent, usually both eyes participate in it.

Fifth. It is a functional loss of equilibrium due to errors of accommodation and refraction primarily assisted in some cases by a faulty attachment of extrinsic muscles, or by other anatomical or pathological vices of the orbits.

Sixth. Typical convergent strabismus is associated with hyperopia, typical divergent squint with myopia.

Seventh. Ninety percent of all children are born hyperopic and are potentially capable of acquiring convergent squint.

Eighth. The rational cure of squint is an early correction of the error of refraction as soon as the diagnosis of squint is positive.

Ninth. It is not advisable to perform a surgical operation on a young child before the age of 5 to 10 unless all non-surgical methods have failed to improve the squint and greatly increase the visual acuity; for, in a number of cases the permanent results of operation are far from idealistic, some cases develop the divergent squint later in life, which deformity is greater than the original one.

Tenth. Since amblyopia is present in one or both eyes in a chronic case of squint it is advisable (in adults) up to 40 years of age to prescribe full correction under atropin, and after the patient has worn the glasses six months to note the improvement in the squint and in vision and if the results are not satisfactory surgical interference is justified.

Two weeks after the operation is performed the case should again be refracted with and without atropin.

70 State Street.

Bromural: Sedative and Hypnotic.— So far as time and opportunity has permitted bromural to be investigated, both experimentally and clinically, it has apparently acted with the smallest amount of untoward effects, and with its full share of good results, writes William Henry Porter, professor of pathology and general medicine at the New York Post-Graduate Medical School and Hospital. So far as Prof. Porter's experience has gone it has none of the unpleasant effects which are known to follow in the wake of some of the somnifacients and bromide preparations, even when they are administered in therapeutic doses.

Bromural is best administered in doses ranging from 5 to 10 grn. at a dose, at or near bedtime, or in 5-grn. doses three or four times daily. To children and infants it is given in

smaller doses. The author's preference in the use of all somni-facients is to give them in small and repeated doses. For general nervous conditions small and frequently repeated doses unquestionably yield the most satisfactory results.

To encourage sleep a moderate dose after the last meal of the day followed by a similar dose at bedtime usually gives the best results and is the least likely to be followed by unpleasant after-effects, if any should follow. This is a rule in regard to the time of administration that holds good for all somnifacients, so far as the author's experience has gone in their use.

Unless bromural is taken in very large doses, it can hardly be classed as a powerful somnifacient. Under such circumstances, it, like all powerful drugs, may in some instances produce unpleasant after-effects and may prove mildly toxic. This is a statement, however, that applies to a host of substances that are capable of producing very decided effects upon the system. Still, it is no bar to their continued and daily use as therapeutic agents.

The greatest value of bromural, however, is found in its pleasant and soothing effects upon the nervous system; hence it is of great service in the management of the nervous conditions met with in women and children.—*Boston Med. & Surg. Journal*, 1908, Nos. 26 & 27.

Fibrolysin in Croupous Pneumonia.—An interesting contribution to fibrolysin therapy has been made by H. Krusinger. He treated a patient suffering from a typical lobar pneumonia of the left lower lobe, which ran the usual course, except that resolution did not set in. After four weeks the physical signs were still the same, despite the fact that large doses of sajodin were given. Fibrolysin, 2.3 Cc., was then injected every other day, with the result that the patient showed improvement after the first injection. After eight injections the temperature was normal, and the lungs had cleared up completely. The patient had steadily lost weight, but now gained rapidly. The same results were obtained in a second, similar case.—*Muench. med. Woch.*, 1908, No. 14.

Treatment of Basedow's Disease with Antithyroidin.—

W. Baumann very strongly opposes the view, recently voiced, that many of the good results obtained with antithyroidin are a result of suggestion on part of both patient and physician. One of the author's cases of Basedow's disease was complicated by metabolic disturbances and the appearance of traces of albumin in the urine. Antithyroidin was given for only three weeks: at first 8 drops three times a day, then 10 drops. All in all, 30 Cc. were employed. The result was quite surprising: After four to five days there was pronounced improvement and at the end of the treatment the patient felt restored to perfect health. The thyroid tumor had diminished 1 Cm., the pulse was only 70 per minute, and the other objective signs had disappeared. There was no possibility of treatment by suggestion, since the patient at first refused to take the medicine. The heart action was not only reduced in frequency, but all irregularity disappeared. No after-effects were seen. The drops should not be given in alcohol, but in plain or mineral water.—Berl. klin. Woch., 1908, No. 20.

Sterilized Gelatin in Hemorrhage of the New-Born.—

A child delivered by L. Grueneberg showed, soon after birth, numerous subcutaneous and submucous hemorrhages. The cord and a small erosion in the mouth bled most alarmingly, so that the life of the child was despaired of. Merck's sterilized gelatin, 15 Cc., was then injected under the skin of the thorax, and all the hemorrhages ceased almost at once. During the following two days the gelatin was given by mouth, in doses of a teaspoonful, every three hours. Recovery was uninterrupted. Muench. med. Woch., 1908, No. 20.

Treatment of Gonorrhea.—John W. Koehn, instructor in genitourinary and skin diseases at the College of Physicians and Surgeons, Chicago, has come to the conclusion that, by a combination of three therapeutic agents—diet, internal administration of a balsam, and local treatment by a silver preparation—the course of an acute urethritis becomes much milder and

shorter, and complications are far less liable to occur. Dr. Koehn gives some cases secured in his practice, which serve to illustrate the value of the combined method of treatment. Besides a reduced diet, the patients are put on santyl-Knoll, 2 to 3 capsules four times daily, without any local treatment until (mostly after three or four days) the patients report improvement, and burning stops and the discharge lessens. This treatment is still continued a few days, and then patients are placed on local treatment, consisting of packing the urethra with a dry dressing of cotton covered with a 10-per cent. aristol ointment, which dressing is inserted by a bone application and left in as long as patients feel comfortable. With this treatment discharge stopped soon after, and healing was accomplished in a relatively short time. The author treated a great many patients both in private practice and in dispensary with this method.—Chicago Med. Recorder, April 15, 1908.

Bromural in the Treatment of Seasickness.—Eugene Perrenon, ship surgeon of the North German Lloyd and chief assistant physician of the German Imperial Navy, reports that bromural was employed with the best results during a number of trips, partly with very stormy weather. The excellent hypnotic properties were very evident, and the effect on the development of seasickness was very gratifying, especially in nervous, overworked individuals, particularly if the remedy was given prophylactically at the beginning of the trip. In those predisposed to seasickness, from 0.3 to 0.6 Gm. (5 to 10 grn.), according to constitution, were given before the first large meal. This dose was repeated the first evening before retiring, and the same treatment continued on the second and, if necessary, on the third day.

Most patients expressed their satisfaction at having obtained sufficient quiet sleep during the first night. On the following morning the appetite did not fail. If the above treatment was continued throughout, nausea did not appear.

Good results were also seen in headache. After 0.6 to 0.9 Gm. (10 to 15 grn.) a quiet, refreshing sleep set in. On awaking, the patients all had an excellent appetite.

If the treatment was begun later, after symptoms of seasickness had already appeared, larger doses were necessary, and the administration had to be continued over a longer period. In conjunction with proper diet, the patients, however, were made more comfortable and the duration of the illness was shortened.—*New Yorker Med. Monatssch.*, Feb. 1908.

Gelatin and Salt Solution Infusions in Typhoid Hemorrhage.—Witthauer reports 4 typhoid cases, with severe hemorrhage from the bowel, treated with subcutaneous injections of sterile gelatin (*Muench. med. Woch.*, May 5, 1908). Three out of the 4 recovered, and in the fourth the hemorrhage stopped three days before death. The preparation used was that of Merck, 50 Gm. per dose, either daily or every other day till the bleeding stopped and remained absent. In conjunction with this the author used salt solution infusions during the height of the bleeding. He had previously used gelatin by mouth and rectum without success, but he believes the subcutaneous use of gelatin in typhoid to be of much value, and he hopes that further observations on the subject will be instituted.—*Boston Med. & Surg. Jour.*, July 23, 1908.

Long-Continued Hemorrhage Brought Under Control with Stypticin.—An obstinate case of uterine hemorrhage, finally brought under control by stypticin, is reported by J. M. Rice of Columbus, Mo. The patient aborted April 5 last, but was able to be around in ten days, being only slightly sick. On May 8 menstruation supposedly commenced, but as the flow increased and continued the doctor was sent for. Through the use of ergot, morphine, and packing he managed to bring the hemorrhage under control in sixteen days. On June 17, however, the bleeding commenced again. Ordinary remedies failed to accomplish good results. Packs and tampons would hold the blood in clots in uterine cavity, but the hemorrhage would commence

again whenever the packing was removed, and would continue until a new packing was introduced. On July 10 the doctor tried stypticin tablets, $\frac{3}{4}$ grn., every three hours, and on the third day afterward the hemorrhage was under complete control.—Correspondence.

Fibrolysin in Interstitial Hepatitis.—The patient observed by Moerlin came to treatment for cirrhosis of the liver, with beginning ascites. The general condition was very poor, and there was loss of appetite, cachexia, and yellowish discoloration of the skin. The patient was so weak that he had to remain in bed. The liver was much shrunken and tender. Potassium iodide did very little good. Fibrolysin injections were then given, 2.3 Cc., two to three time a week. Two days after the second injection the patient noticed some improvement, the fluid in the abdomen had disappeared, and more urine was voided. After the third injection the patient could leave the bed. After the fourth injection the liver had increased in size, and was no longer tender. The patient received a few more injections, and is now virtually well.—Muench. med. Woch., July 7, 1908.

CHRONIC RHEUMATISM.

R

Ol. Sinap. ver	Mx
Ol. Crotonis Vig	Mv
Ol. Olivæ	̄ij
Betul-Ol	̄j
M. ft. Lin.	

Sig: Apply to the affected part on lint imbibed with this liniment and wrap in cotton wool.

PEDIATRICS

Vol. XXI

MAY, 1909

No. 5

ORIGINAL ARTICLES

THE NERVOUS CHILD.*

BY HENRY LARNED KEITH SHAW, M. D.,

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I feel particularly gratified in being associated with you at the commencement of a new era in the history of the Elmira Academy of Medicine. Your record in the past 54 years has been one of which you can indeed feel proud and with the opening of these new quarters its continuation in the future is assured. The influence of Elmira, both medically and politically, is far reaching and has exerted a decided influence for good throughout this State.

While conscious of my own limitations, I have chosen as a subject one which concerns every general practitioner of medicine—the nervous child and his antecedents. There has been a tendency among pediatricists in recent years to pay more attention to the child's personality, ancestry and environment. Physicians recognize a connection between the moral and the morbid condition of the child. This results in a more careful examination into the child's home surroundings and heredity. It is said that

*Read at Elmira, N. Y., October 21, 1908, at the opening of the Academy of Medicine.

children owe to their ancestry the promise of what they may be. Their roots stretch far back into the past. Galton tells us that the child owes one-fourth to each of his parents and one-sixteenth to each of his grandparents. This parental responsibility should not be overlooked or underestimated.

The neurotic temperament has been defined as a disposition in which the emotions are easily kindled and are controlled and restrained imperfectly and with difficulty. This neurotic disposition may or may not be inherited, but there is no question as to the effect of highly strung, emotional, over anxious and fussy parents on a child during its tender years of development. The environment of the nervous child, as well as his personality, should always be considered in relation to his ailments. Instead of saying "like father, like son," it should rather be said, "As the father lives, so lives the son."

Excessive emotion in an adult, whether it is restrained or not, is apt to lead to severe physical effects. The circulation is weakened, there is more or less prostration and the processes of metabolism and elimination are disturbed. If this is the case in the adult, the injuries to the nervous system of the child are far more serious. The brain and nervous system of the child are in a state of imperfect development and unstable equilibrium. They are especially sensitive to emotional excitability. It takes a long time to insure the normal and healthful completion of the growth of the brain and improper environment may result in permanent injury.

Oppenheim contends that the responsibility for a child's nervous and physical development rests heavily upon those who provide the environment.

All of us can recall the emotional sufferings of early childhood. Oliver Wendell Holmes said that a glovemaker's sign in the shape of a huge hand terrified him night and day when he was a child.

Fear is the emotion most apt to produce permanent injury in a child of neurotic temperament. Fear implies imagination and the child who suffers most is the most imaginative. Most of the neurasthenia, hypochondriasis and hysteria in adults may

be traced to the effects of fear in early life. Guthrie says that "excessive and unnatural timidity in a young infant is a forerunner of neuroses to come. It is shown in starts or screams and trembling at sights and sounds which only excite curiosity or amusement in normal children who are just beginning to take notice. Everything which is new and strange to them begets alarm and their mothers are often unwilling to take them out because they become so frightened at the common objects which they see and the noises which they hear."

Reflex irritation, from whatever source, plays an important rôle in the etiology of the nervous child. This again is due to the physiologic instability and immaturity of the child's nervous system. Removal of the irritation will often produce prompt results. A circumcision frequently will remove many nervous manifestations in a boy. Twice I have seen a functional spastic paralysis of the legs disappear after the removal of a tight foreskin. In a similar manner breaking down adhesions of the clitoris will have a surprising effect on the disposition and nervous disorders of a neurotic girl.

Gastro-intestinal irritation is one of the most important factors in bringing about this condition and I wish to emphasize more especially chronic intestinal toxemia in this connection. Acute intestinal toxemias are frequent and fatal in infancy, producing severe and dangerous nervous symptoms, but as the child grows older these acute toxemias become less common and the chronic intoxications become more frequent and more important. In these cases there is a slow absorption of toxins of an unknown nature which produce a large group of nervous symptoms. Constipation is usually present in these cases, but it may be associated with diarrhea. It must be borne in mind that constipation may exist even if the child has one or more movements each day. If the movements are dry and crumbly or contain scybala it is an indication that they have remained in the intestinal canal for twenty-four hours or longer. In this class of cases intestinal putrefaction and hyperfermentation are shown by the presence of indican in excess in the urine.

Functional nervous disturbances cover a large range of symptoms, but it is not my purpose to enter into a discussion of all the conditions included under this term.

The nervous child is familiar to you all. The diagnosis is made as soon as he crosses the threshold of the office. He resists every effort on the doctor's part to please and he knows no discipline. He insists on pulling books from the shelves and refuses point blank every request from parent or doctor. Any attempt at examination brings forth screams and kicks and the sight of a stethoscope terrifies him.

These children are usually thin and undersized. They are anemic with dark circles around the eyes. They are restless and continually on the move. The appetite is poor and they suffer from attacks of abdominal pain, diarrhea and vomiting without any apparent cause. Constipation is the rule. They may be bed-wetters and are often affected with night terrors.

The lack of appetite is the symptom which produces the most alarm in the mother and which I wish to bring to your attention this evening.

We find babies early in infancy who detect and resent the slightest variation in the taste or temperature of the food. They instantly appreciate the difference between the sweetness of mother's milk and that of milk sweetened by cane sugar. These are the babies who refuse artificial feeding and make the question of weaning most formidable. Guthrie claims that this hypersensitiveness of taste is one of the earliest characteristics of a neurotic infant. As the child grows older the appetite becomes more capricious. Each innovation and variation in the diet is regarded with unmistakable suspicion. Some detest milk in any form and seem unable to digest it, while others will for years take only milk and refuse to swallow anything solid. Some would like to live on meat and pickles, while others can only relish bread, butter and jam. Some cannot be induced to touch fresh vegetables or fruit, while others would prefer to eat nothing else.

There are many children who require constant coaxing while eating. They must have their attention diverted by a story or a toy. They will take a mouthful for the coachman, for the cook,

for the dog, etc., and this entertaining process has to be gone through several times a day. Some children are indulged in their pathological cravings for improper food on the ground that they eat so little and the mother thought it would not harm him.

To prepare a suitable menu is a matter of perplexity for the idiosyncrasies of the diet of the nervous child pass all understanding and all science.

Sometimes a particular food is abhorred because it raises the memory of some past sickness. A permanent distaste for eggs may be aroused after eating one which is no longer strictly fresh.

The custom of administering medicine in food is a frequent and preventable cause of food aversion. Milk and medicine are incompatible and the memory of the loathsome castor oil floating on warm milk is rarely effaced. To conceal a powder or tablet in a little cake or jam and give it to the unsuspecting child is taking an unfair advantage over youthful simplicity and creates a distrust which is difficult to overcome.

The term *anorexia nervosa* is applied to extreme cases of food aversion and this is now recognized as a distinct disease entity. Forcheimer defines it as one of anorexia in neuropathic children accompanied by loss of weight. It may terminate fatally and no organic lesion can be found. It is a true neurosis or psychosis. The anorexia may be complete or incomplete in that the child takes no food at all or restricts himself to certain articles of diet. There must be an absence of organic lesion to explain the loss of appetite.

These severe cases are closely akin to hysteria or hypochondriasis. In a valuable contribution on the subject, Forcheimer gives the histories of four typical cases, three of which recovered and a fourth died, the latter not being permitted by its parents to come under treatment.

The aim of the family physician should be to make the strongest possible adult out of every child under his care. He must realize the importance of the child's early surroundings and influences. The responsibilities of the parents during the tender years of childhood should be tactfully emphasized. To indulge

a child in his whims and appetites invites disaster. While writing this I have a child of two and one-half years under treatment for acute gastro-intestinal catarrh, the result of her insistence for peanuts in a store which the mother allowed for fear she would make a scene and have one of her tantrums.

Gulick in his "Efficient Life" speaks of a mother with five children who invariably took at least one hour a day for rest and quiet, reading alone by herself. As the result of this she kept her health and was a constant joy and inspiration to her children. The environment surrounding these children certainly was not conducive to nervousness. The trouble with most mothers is that they slave for their children so many hours a day that they have no energy left to enjoy and love them and each day's routine seems intolerable drudgery.

The training of the child's nervous system cannot begin too early. Northrup wrote a timely warning on nervous exhaustion in infants. He implores physicians to try and protect the coming generation from nervous exhaustion, nervous dyspepsia, sleepless nights and choreic jerkiness before they have cut their first teeth by teaching the parents the lesson of quiet surroundings.

The young infant whose fond parents feed it too often, handle it too much and keep it in an atmosphere of indulgence and excitement all too frequently becomes the nervous child.

The child is an imitative creature and if the parents expect to exert proper influence they must hold themselves in check in his presence. Good example should always accompany good advice. Regulation of habits and regularity of eating are necessary and should be continued and insisted upon until they become almost automatic and self discipline is attained.

Examination of the urine should be made in these cases. Indican is an almost positive indication of intestinal toxemias and of hyperfermentation of the albuminous food stuffs in the intestine and retardation in their passage through the canal. Uric acid in excess has been found in a number of my cases and is significant of faulty metabolism.

These cases must be managed with a firm hand and every unsuccessful attempt to make a child eat, whether by force or persuasion, is a distinct loss of ground.

Some children apparently inspired by the adversary when forced to eat food, will immediately vomit it. When proper discipline is employed and adhered to, most of them will give in.

The best results can only be obtained when the child is removed from his ordinary surroundings. It is almost impossible to convince the parents that this is necessary and that the mother is not the proper person to take care of this kind of case. An infant twenty-two months of age was unsuccessfully treated at his home for anorexia, where he was under the influence of a most neurotic mother. He refused all food and was losing steadily in weight. At the hospital he at once began to take food and in three weeks gained nearly a pound and a half. On the return home the identical symptoms reappeared and after two months he was again brought to the hospital where the appetite at once returned without any treatment whatever. I could quote several such cases.

The feeding is the important and controlling factor in the treatment. A plain diet of milk, eggs, cereals and broths should comprise the nourishment.

Rectal feeding will give only temporary relief and should be employed only in desperate cases. Feeding by gavage is a valuable adjunct and often has a therapeutic value. I have permanently cured several children after one feeding by gavage. Speaking casually to the nurse about its imminent trial is sometimes sufficient to create quite an appetite.

A proper regulation of the feeding hours is important. All meals should be given at a definite time each day and these hours should never be changed. Too frequent feeding may create a dislike for food. Parents argue that because the child takes so little food he should take it oftener. As the child grows older the intervals are lengthened and the amount of food at meals is increased. Under no condition should milk or food be given between meals.

Fresh air is necessary. Children kept closely confined in the house invariably have poor appetites. Several hours a day in the open air regardless of the season of the year should be insisted upon. A cool, well ventilated sleeping room at night is desirable.

A change of climate from the city to the country, seashore or mountains is often most beneficial but this unfortunately is often impracticable.

A cold sponge each morning has a marked tonic and stimulative effect on the nervous system and is to be advised.

Drugs may have a moral or suggestive value as in the neurasthenia of adults, but too much reliance should not be placed upon them. Mild, pleasant and palatable laxatives can be given to relieve the sluggish condition of the bowels. Iron is indicated for the anaemia. The German "eisenzucker" or saccharated iron oxide is easy of administration and more efficacious than the much advertised organic preparations of iron.

The nervous child is the product of our present day methods of living and the genus is rapidly increasing. The object in bringing him to your attention this evening is to emphasize the importance of making the child's surroundings more conducive to quiet growth and development. Let us aim to render life not less strenuous, perhaps, but more efficient.

THE EXAMINATION OF EXCEPTIONAL CHILDREN.*

BY D. P. MACMILLAN, PH. D.

Although the term "Exceptional Children" is wholly unscientific, in the common acceptance of the words, nevertheless it carries with it a meaning in practical affairs that has its value. The word "Exceptional" recalls to your minds immediately the fact that reference is made to some common rule, principle, or standard, and when it is prefixed to "Children," it makes a direct allusion to the norm, the type, whether, indeed, this be thought of as the *average*, the *median* or *mode*, or the most frequently appearing characteristic of a group, or of all species represented by the generic term or denomination.

Now, what is meant by the normal child, and how is normality determined? With reference to the latter part of the problem, it may be said at once that there is no other way of finding out than by actually testing, measuring and examining. Common observation and description will not suffice. It is only by judicious control of the methods of precision in securing, recording and manipulating data that we get a statement in quantitative terms of how much this and that trait or characteristic or quality each child possesses. It has, then, come about that the statistical average is taken to represent the core or norm of the group. To this, however, must be added some qualifications, some provision must be made to more adequately define this term "average" or to show its place in the group. We must tell how exactly it represents each member or case of the group. This is indicated for us by the mean deviation or the average deviation. In addition to this expression of the average and the average deviation of the group, we must have at hand some definition of the

*Read at a meeting of the Chicago Pediatric Society, March 16, 1909.

representivity of the group considered with reference to all the members of the genus of which this group measured is a part.

We have, then, the necessity imposed upon us, if we are to be able to talk anyways accurately of special children, to find out what is really meant by *normal children*. This in turn necessitates the examination of very large numbers; but inasmuch as such cannot always be dealt with, we are obliged (1) to determine the average characteristic of each function in the children actually tested; (2) to secure some expression of the distribution of the average in this group; and (3) to know as accurately as possible to what degree this average and this group represents *all* children.

Further, if you will pardon a few more cumbersome scientific considerations, we should bear in mind that when any trait or characteristic of a child shows a certain degree of departure from the normal, that very fact constitutes such a child a new type or an exception. That is, in any group of children examined, we do not expect to find them all homogenous. Since the mean variation denotes that variation from the average which is not exceeded by two-thirds of the cases of the group studied, any case falling outside that measure is, in reference to the particular function tested, to be regarded as an exception. To be sure there may be marked homogeneity in the group when one trait or characteristic of children is considered, and very great differences may be noticed in the constituent members when other traits or tendencies are under investigation. To consider at this present time all the various phases or aspects of the life of children would be too great an undertaking, both for the time at our disposal, the object of this symposium, and the ability of the speaker. I will, however, call attention to the most salient features of a psycho-physical examination, and after that briefly enumerate the most common classes of exceptional children that are encountered in the daily round of duties of an officer of the public school system.

In a general diagnosis, data secured from any source may prove contributory, and as a precautionary measure, should not be overlooked. It is, therefore, highly desirable to know something of the family medium into which a child is born. The in-

heritance and probable tendencies to neuroses, tuberculosis, etc., of one form or another, in direct and in collateral family lines should be secured. Then, again, it is to be understood that one should have reliable records, not only as to the pre-birth conditions, but likewise with reference to the circumstances attending birth. Further, data should be secured relative to the date of appearance of control and maturing of the distinctly physical functions, beginning with the most fundamental and organic, and proceeding upward to the higher physiological and psychical. This would, of course, throw into prominence such important items as the rate of development in physical control of the fundamental life activities, date or time of securing first teeth, of completing teething, time of learning to walk and talk, closing of fontanelles, acquiring control of fundamental reflexes and other factors which are indicative of rate of maturation.

It is not only unnecessary but highly improper for me to dilate upon the necessity of examining these features before a body of pediatricians. Further, it is unnecessary to do anything else except merely to allude to the necessity of cataloguing the health-record during the early years of children, and of taking some account of the educational regime; that is, the attempts at external control by home influences and the responsiveness of the child to training in self-direction. Further, it should be added that an all-round examination should insist upon controlled observations and measurements of an anthropometric nature to determine the physical status and the defects which may be observable as a consequence. These measurements of the two aspects of physical growth,—namely, size or bulk, and movement or control, should be carefully taken in all their features or aspects, and of course the physical status of any child can be readily interpreted on the scale which we have established in dealing with large numbers, and which we term our *norms*. But besides securing reliable information relative to probable inheritance, family history, rate of physical maturation, comparative anthropometric status, health record, and the educational regimen of the home, it is indispensable to have norms established of the different *mental* traits and tendencies. These distinctly mental

tests and measurements one must endeavor to center about native abilities or efficiencies; that is, we must test the natural powers of the mind irrespective of all training.

Then, if we have at command not only the *norms* of *physical* growth, movement and strength, and the *measuring rods* of the different *mental* powers, we can read off the exceptional children as readily as we can apprehend the excess or defects of any physical object or material process.

This all means that we can define or determine the exceptional children. The treatment and training in the large¹ sense of the exceptionals, form altogether another consideration.

Having merely determined, as it were, by taking a cross-section of his physical and mental growth at any one point, the status or station of a child, we find that there are other larger and more important features of the whole problem yet to be solved, and which we can only indicate at this time. For example, it is highly desirable as soon as we consider the large topic of inducing changes in mental and physical growth, to know

(1) the *causes* which determine a child's station in each trait or aspect of growth;

(2) the *agencies*—educational, hygienic and medicinal, which may lower or raise the child in each station;

(3) the end to be brought about or sought after in bringing up and training exceptional children. This seems at once palpable on the physical side, but it presents questions of mind that are not so readily resolved.

Shall we aim to induce a *balance* of the different powers and functions? Shall we take it as our end to smooth out the irregularities, the abnormalities, the asymmetries, and thus bring all children as near as possible to the average; or, on the other hand, shall we further foster the eccentricities, the exceptional excesses, and not only allow each child of this character to go in the line of least resistance for him, but also in the probable path of his surest success? You see, at once, these are some of the larger problems of education and experimental pedagogy, and you can appreciate that responsibility that any person assumes in

the position of expert adviser to parents or guardians and to teachers.

There are, then, in children all degrees of physical efficiencies and all grades of capacities in mental power; and any *defect* in one feature or in several of the physical functions, or again, of the mental traits, or any *excess* in the mental or physical equipment, will constitute for us an exceptional child. Defects or excesses on the physical side can be readily appreciated by you; further, they can be easily imagined in the mental realm when you recall the obvious yet important traits that differentiate children. The enumeration of a few of the most important of these will suffice, such as total intelligence, mental balance, efficiency or susceptibility of training, energy, sensitivity to impressions, tenacity of memories and selectivity in responses, abstract power, mathematical ability, musical ability, skill and taste in drawing or painting, mechanical insight, steadiness, courage, sociability, affection. In general it may be said that with all possible permutations and combinations such a variety of traits or characteristics present, both physical and mental, it is small wonder that the great variations found among children are not greater. Probably they are saved from what may be thought of as complete individualism by the relative *uniformity of their environments* and their *habitual modes of reaction*.

Concrete instances of some of these common varieties may be made to stand out for us in the every-day language of description. Thus we find the child who is exceptionally bright and with either normal bodily powers, or less than normal. There is the child of average ability but exceptionally ambitious or enthusiastic. There is again, the child who is exceptionally bright in languages or in artistic skill and taste, or in number power, and each with possible varying degrees of physical equipment. Again it is easy to find quite a number of children with such unique capacities that they must be reckoned as slow in all sorts of school work, but who exhibit in later life a fair degree or even an unusual degree of business capacity. We find the child who is mentally dull in all-round efficiencies, or in some particu-

lar feat, and yet is favored with an average or an excellent physique. Then there are the *backwards*, or the retards for their years, and those *subnormally* endowed in respect to mental gifts, afflicted with physical defects of various kinds and degrees. The several varieties and classification of these defectives I will not allude to at this time, nor the characteristics both mental and physical which differentiate them.

It should, of course, be added here that all these children that are suffering from remedial physical defects, ought to be the special objects of concern of educational bodies. Not only should there be an adequate examining body, but also, what is of more importance, an efficient social organization to remedy and care for these defects, so that the work of education itself may be more economically administered, and that the greatest efficiency may be developed in each child.

Then again, there are quite a number of children, to be sure, with different grades of mentality, so afflicted bodily that they cannot for obvious reasons be taught with other children. Of these we may mention the deaf, the blind, the crippled, the epileptics. All these are now given adaptable educational opportunities in Chicago, with the exception of the epileptics, who ought to be treated and trained according to capacities in some sort of institutional and colony life.

Above and beyond all these exceptionals, by reason of divergencies from the norms of mental and of physical status, there are quite a number of *moral defectives*. To be sure, again, these children may have minor or grave physical and mental defects, but they are apprehended as pronouncedly moral departures from the usual popular standards of right thinking and right doing. I say popular or conventional, for as yet there are no norms of morality comparable to those of mentality and physique. These children present their own problems, for among them we must count the truants,—sporadic and habitual, the strenuously quarrelsome, the delinquents of all degrees and even the perverts.

Of course you will appreciate that it is difficult to give here the strictly scientific equivalent for each of these popular and common descriptive terms, but one can at first more readily

recognize *exceptional children* when referred to in the common denominators of current language, than in the statements of the per-centile grades or stations of each in the different physical and mental processes.

You will believe me, I trust, when I express to you my appreciation of the opportunity of opening up for your discussion, as a body interested in the treatment of children's diseases, the general topic of the examination of exceptional school children. You ought to understand, as no other professional body of workers can, what a faint line of demarcation lies between the normal and the abnormal, the typical and the atypical, and how important is the hygienic problem, both from the physical and the mental sides, which the *exceptional child* presents for us in present day society.

THE EYE AND EAR DEFECTS OF EXCEPTIONAL CHILDREN.*

BY THOMAS FAITH, M. D.

CHICAGO.

Public education as it is carried out at the present time by civilized communities, consists of giving a systematic mental and physical training to the individuals of society; and as this training begins at an early period of life the principal part of the training is of an intellectual rather than a physical nature. This being true it is necessary that impressions from without must reach the brain of the pupil if education is to obtain, and the routes over which these impressions pass are the organs of special sense, and in the every day school work the most important and by far the great majority of impressions are received by way of the organs of sight and hearing.

With these facts in mind, then, it is very evident that school children in order to progress to the best advantage should have good vision and hearing and the gradual raising of the standards of education demands that all physical defects of school children should be relieved or the conditions of the individual children altered so as to make this natural handicap less burdensome.

The importance of the physical examination of school children is readily appreciated when one learns of the great number of physical defects which have been discovered by their systematic examination; and the attitude of the various educational boards towards this subject gives evidence of the value they place upon the work.

In the various European countries and in our own United States these examinations always include as an important part of

*Read at a meeting of the Chicago Pediatric Society, March 16, 1909.

the work an examination of visual acuity, and in most places, a test of hearing.

The importance of the visual and hearing tests is well illustrated by a table published by Gullick and Ayers¹ including 567,973 children examined, 143,946 or 25.2% of which were found to have defective vision and of 510,740 examined 30,409 or 5.8% of which were found to have defective hearing. These examinations were conducted in the various cities and towns of seven states of the Union and in Scotland.

The defects of vision found in school children are principally due to refractive errors though to some extent they are due to diseased conditions, and whether the defects are curable or incurable their discovery is important as when once discovered some remedial measures may be adopted which will lessen their burdensome effects.

It requires very little reasoning to see that children with defects of the two most important of the special senses who receive no special consideration and who are expected to compete with other children with perfect sight and hearing, are placed at a great disadvantage in gaining an education; and the opinions of writers and observers hereinafter quoted certainly support the statement that defects of sight and hearing are two important causes of backwardness in school children.

Bull (2) believe that ocular defects are a very common cause of apparent mental dullness and deficiency in children and that of these defects of the eye by far the most frequent are anomalies of refraction. In the order of their frequency in children, they are hypermetropia, astigmatism and myopia, the former decreasing and the latter increasing as age advances. The child with uncorrected hypermetropia he says complains of inability to sustain accommodative effort for near objects, he becomes dull and stupid because eye strain renders him incapable of the continued mental stress required by prolonged use of his eyes for his studies.

"Ingalls (3) makes the observation that as myopic children have a limited range of vision their habits are modified so that they pay particular attention to objects that are near by, read-

ing and study rather than out of door sports; that the hyperopic child has difficulty in seeing small objects located one or two feet from his eyes and as a result finds it hard to read or write. He thinks these cases are peculiarly sluggish in their mental machinery, that they do not grasp ideas quickly; it takes them a long time to arrive at any decision and they do not reason clearly because they do not see clearly. He further says that a boy with hypermetropia of high degree is always behind in his studies, learns to prevaricate and make excuses for lessons unlearned."

The author would add that while the above observation concerning myopia is true, it must be remembered that though myopes are ordinarily of a studious nature the myopia is usually the result of close application rather than the cause and that the percentage of myopia tends to increase with the increasing age of the school pupils according to Randall (4), Risley (5) and all other writers; and that hyperopes that suffer from asthenopia frequently become myopic from continued close application without correction.

However I quite agree with Ingalls that patients with high degrees of hyperopia are usually behind in their classes until refractive correction is obtained and then sometimes it is too late to produce results, as habits of indifference and truancy may be formed which cannot be corrected.

Greenwood (6) thinks that even in the really feeble-minded, benefit may be obtained by wearing the correcting glasses which enable the attention to be fixed without strain. The majority of feeble-minded children, he observes, have marked errors of refraction and this being true though to a lesser degree in backward children it emphasizes the necessity of the above suggestion.

Cornell (7) in summing up the relation of poor vision to poor scholarship says that such a relationship should exist is but reasonable and is strikingly manifest in the study of actually feeble minded children, where associated defects of the special senses such as sight and hearing are frequently found and where great improvement often takes place subsequent to the correction

of these defects. He, however, says one should not expect sensational results in examining large numbers of children.

"Newmayer (8) calls attention to the fact that defective hearing and a deficient mental condition often coexist and while the latter may be noted the former is not known."

It is common experience, I believe, that it is often a matter of some difficulty to determine how much is dullness and how much is deafness when examining a young child with defective hearing, and the author has often settled this question by noting the child's ability in lip reading, a faculty which the really dull child does not develop to any extent.

Again Newmayer (9) says that the eyes and ears are particularly the organs which may cause mental retardation. That normal hearing is important to normal mental faculties, but when one considers that there are few impressions dependent upon the sense of hearing that cannot be conveyed by the sense of sight, this fact coupled with the fact that the percentage of children who have defective hearing is only about one-fourth of those having visual defects, one is led to conclude that visual defects are by far more important causes of mental dullness than defects of hearing.

It has been the author's experience that the *child* with a high degree of refractive error of any kind soon learns that he is unable to see as well as other children and does not attempt it, but he does not usually suffer from headaches, eye pains and irritated eyes or eyelids, and consequently his disability may not become known early to either parents or teacher. As a result he may become inattentive and indifferent to his school work, he makes the least possible effort as he finds effort of no avail. He gets behind in his classes, becomes dissatisfied and if congenial company is found among truants he may become a truant also.

On the other hand the child with a low degree of refractive error particularly hyperopia and astigmatism is usually capable of overcoming the error by muscular action and thus obtaining normal vision, but at the expense of an immense amount of nervous energy; the result is headaches and asthenopic symptoms and if the nervous system is not up to par a chronic condition

of nervous irritation results. Such children then become irritable, dissatisfied and unruly; and this, in turn, may cause them to think they are abused and misunderstood.

We may, I think, divide these cases of defective sight and hearing into two classes. *First*, those who cannot be driven to do their work on account of physical inability to accomplish results with ease and, *second*, those who can accomplish results and will be urged on by their teacher, parent or ambition, until they either break down or rebel on account of the nervous strain imposed in carrying on the work.

To the first class belong the cases of high refractive errors, congenital defects of the cornea, lens, etc., the cases of congenital word blindness and the cases of defective hearing. To the latter belong the cases of slight defects of vision due to disease, low degrees of refraction errors, cases of muscle imbalance, and cases of deficient accommodation. As these physical defects would certainly tend to cause children to leave or be taken from school at an earlier time than would ordinarily occur, just so certainly would they tend to produce dissatisfied and unsuccessful members of society as the uneducated individual does not have an equal chance with the educated individual in the struggle for existence, all other things being equal.

In every day life we are all familiar with the fact that unsuccessful and dissatisfied people frequently become addicted to the use of alcohol and in this connection it is interesting to note that of 5,000 inmates admitted to the New York State Reformatory at Elmira between 1900 and 1906,—2,735 or 54.7% were addicted to the use of alcohol, that 675 or 13.5% had defective eye sight and 281 or 5.625% had defective hearing. The average age of the inmates was $20\frac{3}{4}$ years.

Case (10) who has tabulated the above statistics in an extensive study of the condition of the eyes of the inmates of sixty penal institutions, including sixteen juvenile reformatories, eleven intermediate reformatories and thirty-three prisons where glasses have been ordered for patients with defective vision, concurs in the opinions of Dr. F. L. Christian who has been senior physician

to the Elmira Reformatory for many years and who says: "The general progress of the men after receiving glasses was greatly improved and far better results were obtained than previously, and that the records show that improved vision was in nearly all cases followed by not only better work at school and trades, but, also, better demeanor."

If the results are so noticeable in this class of individuals of twenty years or thereabouts, how much more may we expect from the correction of these defects in children of the primary grades who are at that plastic age when slight influences have such great effects?

In conclusion I would say that the excellent work which has been done by various examining boards in this direction should be applauded and encouraged and that it should not only include the routine examination of all school children's eyes and ears as well as a general physical examination, but should include a special examination of the exceptional children so that statistics of value may be compiled which concern these children alone, and from which proper deductions can be drawn.

And in the meantime we should keep in mind that while the percentage of physical defects dwindle as the grades advance, vision stands in a class by itself, increasing rather steadily with the higher grades; starting, according to Gulick and Ayers (11) at 20.2% defective in the second grade and increasing to 32.3% in the eighth grade.

BIBLIOGRAPHY.

1. Gulick and Ayers. (P 83 Medical Inspection of Schools).
2. Bull, Chas. Steadman. *Pediatrics* Feb. 15, 1902.
3. Ingalls J. W., *Brooklyn Medical Journal*, March, 1902.
4. Randall B. A., *Am. Jour. of Medical Sciences*, July, 1885.
5. Risley, S. D. Norris and Oliver, *System of Dis. of Eye*, Vol. 11, p. 356.
6. Greenwood Allen. *Boston Med. & Surg. Jour.*, Feb. 25, 1905.

7. Cornell, W. S., N. Y. Med. Jour., June 1, 1907.
8. Newmayer, S. W., N. Y. Med. Jour., Nov. 2, 1907.
9. Newmayer, S. W., N. Y. Med. Jour., May 9, 1908.
10. Case, G. M., Transactions of Am. Acad. of Oph. & Oto. Laryngl. 1906, p. 116.
11. Gulick & Ayers. Medical Inspection of Schools, p. 197.

**RESULTS OBTAINED BY THE USE OF CONDENSED
MILK MIXTURES IN THE DIARRHOEAS OC-
CURRING DURING THE COURSE OF
GASTRO-ENTERIC DISEASE.***

BY WILLIAM A. NORTHRIDGE, M. D.

Curative measures other than those strictly medicinal in the treatment of gastro-enteric disease, are coming more and more into vogue in the best practice, and deservedly so.

To cure a diarrhoea, we no longer coat the intestines with bi-hourly doses of bismuth, prescribe narcotic opium or are disturbed in our minds as to whether it would be better to use salol, salicylate of calcium or the astringents.

While in rare cases any of these or other drugs may be indicated for a time, the great majority of our patients may be cured by the carrying out of measures calculated to meet the following indications.

First. To clean out the gastro-intestinal canal. This is best accomplished by the act of emesis (this is nature's contribution, generally, towards cure, as is also the diarrhoea, both within certain limits) and by lavage for the upper end of the tract and by the exhibition of laxatives and by the use of irrigation for the lower end.

Second. To place the canal in as near a state of complete rest as possible by withdrawing the ordinary diet for a time at least.

Third. To use rectal feeding where indicated. To give sterile water and to use hypodermoclysis when necessary to fill the depleted blood vessels.

*Read at a meeting of the Pediatric Section of the Medical Society of the County of Kings, March 23, 1909.

Fourth. To give a very delicate food to support life and especially one which will be easily digested with as little irritant residue as possible.

Fifth. To give a food, when possible, so constituted, as not only not to tend to cause wet discharges; but rather tending to produce dry stools or constipation.

Condensed milk in certain mixtures is offered as an additional food of the non-irritant class just mentioned, and one that in these mixtures, has a distinct tendency toward the formation of dry stools among its other qualities.

In advocating the use of condensed milk mixtures as a remedy for persistent diarrhoea in gastro-enteric cases, I do not desire to be understood as recommending condensed milk as a *food* for infants, for I have a poor opinion of its nutritive value.

While its exclusive use in feeding frequently produces a fat healthy looking baby, experience teaches that when such a one is stricken down with a serious disease, he does not possess the same resisting power that the fresh food fed baby does, and if fed exclusively on this food for a long time he is very apt to suffer grave disturbances of nutrition and so we see rachitis and scorbutus resulting at times.

But when used mainly for its remedial effect in gastro-enteritis, and for a limited time, it is of decided value. It checks the diarrhoea quite promptly and the stool becomes normal in color, consistency and odor.

And when we call to mind the chemical analysis of condensed milk and its physical properties, we see good reason why it should act in this way.

You will remember that it is prepared by heating fresh cows' milk to a temperature of 212° F. to sterilize it, and afterwards evaporating three-fourths of the water contained in it, in vacuo at a low temperature.

If it is to be sealed in cans for future use, cane sugar is added. If it is to be used immediately, nothing is added.

Here we have a sterile or near sterile food.

An analysis of eighteen samples of condensed milk from various sources and by several chemists gives the following average content :

Fat	7.54	per cent.
Proteid	8.82	" "
Milk sugar	11.92	" "
Cane sugar	41.68	" "
Salts	1.67	" "
Water	28.32	" "
Total	100.00	" "

Diluting milk of this strength with twelve parts of water we have the following :

Fat	0.58	per cent.
Proteid	0.67	" "
Milk sugar	0.92	" "
Cane sugar	3.20	" "
Salts	0.13	" "
Water	94.50	" "
Total	100.00	" "

By diluting with eighteen parts of water we obtain the following :

Fat	0.39	per cent.
Proteid	0.46	" "
Milk sugar	0.63	" "
Cane sugar	2.19	" "
Salts	0.08	" "
Water	96.25	" "
Total	100.00	" "

In these dilutions of condensed milk we have theoretically and practically a very easily digested food and herein undoubtedly lies the secret as to why it is so easily taken care of by babies with very weak digestive tracts.

The fat and proteid that so often make us trouble are present in a minute percentage and the sugar equalling only $4\frac{1}{2}$ per cent. in the 1 to 12 dilution is a food easily digested by most babies.

In proper dilutions, then we appear to have in condensed milk a non-irritating, non-fermentative and generally easily

digested food; sterile or nearly sterile and having a very low fat and proteid content and being reasonably low in sugar.

It appears that it may be used, for short periods, during attacks of gastro-intestinal disease often with benefit to the irritated or inflamed mucous membranes.

In a large majority of the cases, under its use, the stools change very much for the better in from 24 to 72 hours.

Where the food is of benefit the change to normal or to constipation is fairly rapid in most of the cases.

In about 12 per cent. of the cases here reported it was of no value, failing to cure along with everything else which was tried.

In these cases we are used to seeing a green, curdy, thin or watery and mucous foul smelling discharge.

The stools where this change in diet is successful, become yellow and soft or yellow and constipated. The mucus, curds and green color quite generally disappearing.

It appears then that this form of milk might be worthy of trial where the foods and measures that we generally use fail us and also in appropriate cases on its own account.

In treating these diarrhoea cases with condensed milk mixtures it is very important to change back to a fresh food at the earliest possible moment as any prolonged and exclusive use of these sterilized foods, tends to cause grave disturbances of nutrition. So when the passages have become normal and have remained so for a few days it is my habit to change back again to a fresh food and watch carefully and if the diarrhoea returns, place the patient again on the condensed milk mixture.

Theoretically cane sugar may cause diarrhoea. Practically it does not do so, although in a few cases the cane sugar in canned condensed milk mixtures prevents our obtaining good results. In such cases it is well to try the freshly prepared jar of condensed milk before abandoning its use.

Sugar is easily digested by the majority of infants, although in some instances it will cause trouble.

If the proteid is present in an infant's food in excess of what the infant can take care of, curdy diarrhoeal stools will frequently

be seen and colic will be present if the child is below 3 months of age.

If the fat be too high this factor will also cause thin, frequent stools.

If too much sugar is given we sometimes see thin, green, acid stools and also colic in consequence.

Now, the converse is also true and a food very low in proteid, and in fat and in sugar is non-irritating, easily digested and tending to dry stools or constipation, and such a food remedy we have in diluted condensed milk mixtures.

I present a synopsis of forty-three cases treated at the Babies' Hospital with these condensed milk mixtures. Of these, 20 were males and 23 females. Their ages were from 9 days to one year, with one baby 20 months old. The large majority were under 4 months of age.

The 43 cases were made up of 17 cases of gastro-enteritis, 13 cases of chronic gastro-enteritis or athrepsia, 10 cases of gastro-enteritis with malnutrition, and 3 cases of gastro-enteritis with congenital syphilis.

The character of the stools before the use of the condensed milk mixtures was as follows:

In 17 cases they were watery and green with curds and mucus and offensive odor.

In 14 cases they were thin and yellow with curds and mucus.

In 9 cases they were green and thin.

In 3 cases they were watery, green and curdy.

The character of the stools after the use of the condensed milk mixtures was as follows:

In 3 cases watery, green and curdy.

In 2 cases yellow and thin.

In 1 case soft, green and curdy.

In 4 cases brown or yellow and soft.

In 17 cases yellow and soft.

In 6 cases yellow and constipated.

In 3 cases yellow and soft but some curds.

In 1 case green, soft and sometimes constipated.

In 6 cases green and yellow and soft.

From this it may be seen that the stools changed to normal or near normal in 30 of the cases, showed marked improvement in eight more and no improvement in 5.

Of the 43 cases, 32 were cured, 3 were unimproved, and 8 died.

Of the 8 that died, 4 were males and 4 females; five were cases of athrepsia or chronic gastro-enteritis; one was a case of congenital syphilis with gastro-enteritis; one a case of malnutrition with chronic gastro-enteritis; and one a case of rachitis, remittent fever and chronic gastro-enteritis. All were desperate cases, perhaps hopeless under any known method of treatment. The stools of all before this milk treatment were green and thin or curdy, green and thin or watery, green and with mucus. After the condensed milk had been given in one case the stools were watery and thin; in three cases the stools were watery, green and curdy; in two cases, green and soft and in two remaining cases yellow and soft.

I will relate a few cases in detail to illustrate the action of the mixtures:

Chronic gastro-enteritis.—Female, 6 months old, weight on admission 7 lbs., 14½ ounces. Family history negative. The stools were watery, green and curdy and continuing so she was taken off the barley water and milk mixture which she had been fed upon and given condensed milk 1 to 16, four ounces every two hours. She lost 13 ounces in weight; but the passages became soft and greenish-yellow in color. Owing to the loss in weight the strength of the mixture was increased to 1 to 12. This caused her to gain steadily in weight and strength and some curds appeared in the stools which became yellow and soft. She was soon able to take care of the 1 to 12 strength, however, and the curds disappeared. Her weight increased to 8 lbs., 11¾ ounces. She was now placed on modified whey and top milk mixtures and had no return of the diarrhoea. Her weight ran up to 10 lbs. and she was discharged cured.

Chronic gastro-enteritis, malnutrition.—Male, 1 month old. A full time baby weighing at birth 7 lbs., 2 ounces. Family his-

tory negative. During its 4 weeks of life before entering the hospital it had been fed on the breast and imperial granum.

The stools were watery, green and curdy with mucus. His weight on admission was 5 lbs., 9½ ounces. The child was put on whey, 2 ounces every 2 hours and lost 2¾ ounces the first week and the diarrhoea continuing, he was given condensed milk, 1 to 12, and the stools became yellow and soft but the child lost again in weight to 4 lbs., 15½ ounces. The next week he lost three-quarters of an ounce with passages normal in color and consistency. The next week the improvement continued and the weight increased slightly to 5 lbs., stools normal. Three days afterwards he got an attack of acute indigestion, such as these weaklings are subject to, and died in a few hours.

Chronic gastro-enteritis.—Male, 5 months old. Family history negative. This child was fed on whole fresh milk one-third, to barley water two-thirds, 5 ounces every 3 hours, but was unable to take care of it, the stool showing large and thin with mucus. He was tried on barley water and albumin with no improvement. He was next placed on condensed milk mixture, 1 to 24, 4 ounces every 2 hours. This just suited the case. The mucus disappeared from the stools, which took on some consistency and the child gained 11 ounces in weight. The mixture was increased in strength to 1 to 16 and continued until the stools were large, yellow and constipated.

He was then placed on whole fresh milk and was discharged soon after seemingly able to take care of his new food.

Gastro-enteritis.—Male, 1 year old. Good family history. child in fair physical condition. Stools large, green and watery. He was given barley water and then a malt food but the stools not changing, he was placed on condensed milk, 1 part to 16 of water. In 72 hours the chart shows that the stools had altered for the better, becoming soft and yellow-green. As the child had lost weight the strength of the food was increased to 1 in 12 with continued improvement. The passages soon becoming brown and soft, no mucus. After 10 days the diarrhoea not recurring he was placed on barley water and whole fresh milk.

He gained in weight steadily and continued to improve for 21 days when he had another attack of diarrhoea and was promptly placed back upon the condensed milk mixture with the same result as before, the stools regaining their proper consistency and color.

Gastro-enteritis.—Male, 1 year old. Family history negative. Breast fed and artificially. Stools green and thin. On admission, the child was placed on whey, 6 ounces every 2 hours. The child refused the food some feedings and took but little at others. At the end of three days as the stools still continued green and thin, he was placed upon condensed milk, 1 to 16, 6 ounces every 3 hours. 24 hours after the change, he had his last watery movement. The next day he had a large green constipated movement. On the third day a small greenish defecation and on the sixth day a large, brown, soft normal defecation. His food was then increased to 8 ounces and he made a complete recovery showing yellow, soft, natural passages.

Gastro-enteritis.—Female, 2 months old. The baby entered for an ophthalmia neonatorum with indigestion; but after 20 days residence, she developed a gastro-enteritis. The passages were very frequent, green and thin and with much mucus. I cleaned her out and ordered condensed milk, 1 to 16, $3\frac{1}{2}$ ounces every 2 hours and the passages gradually improved returning to normal color and consistency with an occasional constipated passage. No medicine was given, but she was irrigated twice daily. The food was increased in quantity without ill effect. When the diarrhoea had disappeared for several days, I changed her food to a modified milk mixture and she continued to gain in weight and health and was discharged cured.

I might go on with these cases but perhaps I have given enough for purposes of illustration.

21 Hanson Place.

NEW YORK ACADEMY OF MEDICINE.

Section on Pediatrics.

STATED MEETING HELD FEBRUARY 11, 1909.

DR. ELI LONG IN THE CHAIR.

A CASE OF ACIDOSIS IN A GIRL OF NINETEEN MONTHS: DEATH.—Dr. Henry E. Hale made a report of this case. He said that his first experience with diacetic acid in the urine had been five years ago, the patient being a baby ten months old, who had cyclic vomiting. Since then he had had seven other cases, and the only one that terminated fatally was the subject of his report. As a result of this experience, instead of considering diacetic acid simply an interesting finding in the urine, he regarded it as an important guide in the treatment of acidosis, and now gave it at once in from two to four teaspoonfuls of milk of magnesia, repeated in a few hours; he also ordered soda bicarbonate or carbonate, by mouth, rectum, or both, encouraged the taking of water and he stopped all food for from twenty-four to forty-eight hours. If he saw another case he said he should advise hypodermoclysis of a soda solution, probably a bicarbonate solution of about .8 per cent. His prophylactic treatment consisted of a diet low in fats, milk of magnesia as a laxative when such was needed, and the administration at regular intervals of two or three weeks of calomel, followed for one, two or three days by nightly doses of sodium phosphate and sodium salicylate. The very first sign of malaise or poor appetite was the signal for a urinary test for diacetic acid, and care should be taken not to mistake a drug reaction for that of diacetic acid.

He first saw the patient on November 17 and death occurred November 21. The child had been fed almost entirely on milk and cereal. The cereal with cream poured from the top of a quart bottle of milk, made up the greater portion of her breakfast. The other four meals consisted of whole milk, a little bread and butter, and possibly once a week a potato. For a month or more previous to her fatal illness she would gag as though to vomit every morning. On November 14, she appeared perfectly well, but on the day following she had no appetite and had some fever. There was no vomiting. She was given a dose of castor oil and the bowels began to move the next morning. The first two stools consisted of fecal matter; the other numbering twenty-three that day, and sixteen the next, consisted of water, blood and mucus. The accuracy of this statement of the parents he questioned. On November 15, 16 and 17 she was fed solely on mutton broth. At no time had her thirst been satisfied. No medicine was given her but subnitrate of bismuth. The child was apparently well nourished and bright. Her pallor was the most striking feature. She did not appear very ill. The rectal temperature was 101.6, pulse 132 and respirations 44. Dr. Hale directed that she should be taken outdoors and that no food should be given her until he saw her again. He ordered salol and powdered opium in lactose, and told the mother to allow her as much water as she wished, adding a half teaspoonful of sodium bicarbonate to the glass. He asked for a specimen of the urine. On November 18 the mother telephoned that the child had not voided any urine, although she had taken large quantities of water. She was twice placed in a tub of hot water and given a high enemata through a catheter but without the desired result. That afternoon the child was apparently improved, but there was a distended bladder reaching two inches above the symphysis pubis. This distention was relieved by the catheter and about six ounces of clear urine was obtained. This contained no albumin, casts, sugar, indican, but it did contain large amounts of diacetic acid, which was differentiated from any reaction due to salicylic acid. On November 19, the child seemed decidedly better. The quantity of soda given was not increased because

there seemed no indication for it. Had a specimen of urine been obtainable it would probably have given a valuable suggestion to the contrary. On November 20 she was nauseated but did not vomit. She had had many yellow, watery, mucous stools with scarcely any odor. Her appearance was not alarming. On November 21, small gray ulcers developed on the margin of the tongue. The urine was lost in the stools. In the afternoon he was called in and found the child in extremis, unconscious, pupils unequal, strabismus marked, and occasionally convulsive movements occurred. The temperature was 105.8, pulse imperceptible at the wrist but 208 at the apex, and respirations of the Cheyne-Stokes type. Death was ushered in with a convulsion.

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS.—Dr. J. Finley Bell of Englewood presented this case. The child was born October 7, 1908. She was nursed regularly, but from the beginning regurgitated more and more after nursing. Notwithstanding the vomiting, at the end of the third week she weighed eleven pounds; then her weight remained stationary for about two weeks when she began to fail. The bowel movements were never large, were infrequent, olive green or dark brown and foul. The urine was scant and left a reddish stain. Various methods of nursing were tried but the symptoms continued. By December 1 the symptoms had become more severe and were so characteristic of congenital pyloric stenosis that Dr. Jacobi was called in consultation and confirmed the diagnosis. By December 11 he was convinced that operation would have to be resorted to. Two operations were performed (see Dr. Curtis' report). The child left the hospital December 24 and had continued to improve ever since. The idea that infants did not bear operations well should be modified. Cases of pyloric stenosis not readily relieved by medical treatment should be operated upon before the child was too reduced to stand surgical treatment.

PARTIAL PYLORECTOMY FOR FIBROMATA IN AN INFANT NINE WEEKS OLD.—Dr. B. Farquhar Curtis made this report. The history of this patient was described by Dr. Bell. The operation was of interest because it offered a possible method for the removal of benign tumors of the pylorus without opening the

cavity of the canal and without entirely separating the stomach from the duodenum. The pylorus was isolated by gauze packing and was found to be the seat of a tumor which occupied principally the free border, although there was some thickening of the walls in the entire circumference. The tumor was covered with normal peritoneum, was densely hard, and about one centimeter in diameter, rounded and tapering to the normal tissues on all sides without definite demarcation. The mucous membrane could be easily detached from the inner surface of the tumor; he decided to leave this intact and to excise only the muscular and peritoneal coats, leaving the superior border of the pylorus, corresponding to the lesser curvature of the stomach. The mucous membrane was not divided, but was bluntly peeled from the internal surface of the part removed so that it was left as a thin sleeve. The superior or attached border of the pylorus was left intact, forming a bridge about one-half a centimeter long and the same in width. The incision across the duodenum measured about two centimeters, the one across the stomach between two and three centimeters, but the gastric and duodenal borders were drawn together without difficulty in spite of the difference in length of these incisions. The operation lasted thirty-six minutes, including an interruption of ten minutes due to defective respiration and rigidity. About one hundred grammes of ether was given in all. The tumor involved only the muscular coats and proved to be a fibromyoma. The vomiting became as severe as before the operation and the appearance of considerable amounts of broken down blood clots seemed to indicate that reactionary swelling of the sleeve of the mucous membrane and perhaps the formation of a hematoma beneath it had produced a complete obstruction of the enlarged orifice. As time did not relieve this obstruction and as the child was rapidly losing ground, it was decided to open the wound and to restore the patency of the canal. Four days after the first operation the second operation was performed. The catgut in the skin had been prematurely absorbed under the strain of the repeated vomiting and the edges of the incision had separated. The wound in the pylorus was very firmly closed by plastic material and the external

layers, instead of being stretched apart, were more inverted than they were originally. Adhesions were separated and the redundant mucous membrane was cut away. Care was taken not to invert the wall of the stomach as strongly as had been in the first operation, and when the sutures were all inserted the air in the stomach was driven through into the intestine, thus proving the patency of the canal. Dr. Curtis expressed himself as in favor of chloroform as an anaesthetic in young children. The pulse after the operation was 144, respiration 46 and the evening temperature 103.2°. Feeding by the stomach was begun very early, owing to the fact that the general condition of the child was so bad. Water was given one hour after the operation and mother's milk three hours after. The threatened collapse justified a violation of the rule to keep the stomach empty. It might be that this precaution might not be so necessary as had been supposed. This method greatly simplified resection of the pylorus, where it was not necessary to remove the part entirely. By pinching up the redundant mucous membrane into a transverse fold and rapidly suturing the base of the fold the redundant part could be cut away without cutting into the lumen. The sutures should be introduced first at the angle of the wound on the posterior wall of the pylorus. The danger of recurrence of the fibromyoma was not imminent enough to require a very wide removal of the sac. It was all important to make the operation as easy and as rapid as possible in these young children, and if recurrence should take place a second operation was preferable to running the risk of losing the child by a too prolonged operation.

Dr. John Douglas said that carmine and charcoal might be of use in determining whether or not stenosis was complete. The presence of curds in the feces would also be of diagnostic value. Even though the vomiting might be continuous, if carmine and charcoal passed through it would prove that the pyloric opening was patent. In regard to the etiology, he said that one could scarcely imagine spasm producing such a hypertrophy of the pylorus. The case which Dr. Bell reported was more like a tumor. Dr. Douglas cited several cases in literature in which

the condition could not have been due to spasm or irritation. In one case the thickening was due to thickened muscular fibers. He thought the cases referred to differed from what was found in adults, where, in doing a gastroenterostomy, there was no sign of thickening or spasm; it hardly seemed possible that they could belong to the same class where there was a congenital non-development as well as spasm and hypertrophy. There seemed to be much diversity of opinion as regarded treatment. Hutchison had reported 14 cases with 13 recoveries. There was a certain number of cases in which operation was necessary, as in spasm, thickening, hypertrophy or congenital thickening. The most recent statistics gave 114 cases operated upon; in these division was done in 27 cases with a mortality of 52 per cent.; gastroenterostomy in 69 cases with 54 per cent. mortality; pyloroplasty in 17 with 53 per cent. mortality; and pylorotomy in one case with 100 per cent. mortality. The most recent statistics were in 22 cases with a mortality of 41 per cent. for pyloroplasty. If these cases could be recognized earlier the chances for the patient would be better. A submucous resection of part of the thickened tissue without opening the cavity of the stomach or duodenum as done by Dr. Curtis, or a sub-mucous pyloroplasty as done by Champrier de Ribes should in the future give so much better results than have been obtained in the past that the physician would not hesitate to refer to the surgeon those cases which did not respond to treatment.

Dr. Henry Koplik said that, in this case, it was fortunate the child was operated upon, but that this did not seem to be a typical case of hypertrophic stenosis of the pylorus for, as Dr. Curtis said, a transverse section through the pylorus would have resembled somewhat a signet ring, with an obstructed centre displaced far from the seal. This case was a tumor of the pylorus and had nothing in common with hypertrophic stenosis of the pylorus. Dr. Koplik thought that Dr. Douglas had stated his position in a very liberal way; they were coming to the belief that these cases should not first come under the care of the surgeon. Ibrahim, Feer, Koplik and others had shown 80 per cent. recoveries with medical treatment. Heubner gave

90 per cent. recoveries. Ibrahim spent three or four years in the study of this disease and stated that by medical means he had cured 80 per cent. When there was spasm, with but little hypertrophy the spasm usually subsided before the case came to operation. Dr. Koplik said that he had had 20 cases of hypertrophic stenosis of the pylorus. In some of these cases where surgeons wished to operate the tumor could be felt and peristalsis was marked, yet these cases went on to recovery without operation. There might be considerable stenosis with spasm and still the patient would get well. Medical men looked at these cases in different ways. Some felt that they could not put these children under the knife in true congenital hypertrophic stenosis, except as a desperate measure. He had had some very severe cases and two out of three operated upon died. In one of these the child was in a fairly good condition but developed a mastoiditis and died. Dr. Koplik related several cases in which the tumor could be distinctly felt and still the children recovered without operation. If there was vomiting of blood with collapse and one felt that something must be done, operation might be resorted to, but he had seen cases where there was vomiting of blood and yet he did not advise operation and the children recovered.

Dr. Clarence A. McWilliams said that medical treatment should not be persisted in too long if the surgeon was to be called in. Dr. Koplik said that 60 per cent. of these cases could be cured by medical treatment but it was only by surgery that some of the remaining 40 per cent. could be saved. Statistics of operations showed 40 to 50 percent. recoveries, which was not bad considering the condition of some of the patients at the time of operation. This, too, when stomach surgery was in its developmental stage; better results could be expected in the future. If proper medical treatment were instituted early in these cases probably the majority would get well, but some cases resisted intelligent medical treatment and these together with those that came to treatment late in the development of the disease were proper cases for the surgeon. The most important indication for operation was progressive and obstinate loss of weight. The

most favorable statistics were those of Nocoll (*Glasgow Medical Journal*, 1908) who operated upon 13 cases with only 2 deaths, a percentage of 15.2. He operated upon the pylorus, making a V shaped incision through the muscular fibres but not through the mucous membrane. Divulsion of the pylorus was performed through a separate incision in the stomach. The V was then sutured so as to form a Y. This was a simple operation and could easily be performed. It was probably necessary only to paralyze the sphincter of the pylorus for some time in order to effect a cure of the stenosis as it was probable that hypertrophy of the muscle alone in itself never completely closed the pylorus.

Dr. J. Finley Bell said that some of the cases reported to be cured remained to be proven. He told of one case thus reported that died later from another cause and at autopsy pyloric stenosis was found to exist. It was not his custom to wash babies' stomachs very much as it taxed their strength too much. In regard to the growth being a tumor in the case reported he said that it was not a true hypertrophy; it was largely local and the microscopical sections showed it to be composed of simple unstriped muscular fibers perfectly normal. The mortality of surgical cases, including medically neglected ones was 50 per cent. In the case reported the stenosis was complete; it was impossible to drive gas or water through the pylorus.

A STUDY OF THE EYE IN MENTAL DEFECTIVES.—*Drs. L. Pierce Clark* and *Marten Cohen* presented this paper. They said the fact that fundus examinations had been so little emphasized in examinations in idiocy might possibly be accounted for by the negative findings of Moss who examined 116 feeble minded children in Berlin. This study showed but two cases with alterations in the fundus. Of 528 cases examined by Gelfe but 27.5 per cent. showed normal eyes. Gelfe's idiots showed a percentage of 43 for normal idiot fundi as compared with 56 for weak minded and 83 for simply backward children. Their findings were quite in accord with those of Gelfe. They had undertaken this study because Cline and Tyson in inquiring into the nature of eye changes found in dementia precox that a fairly constant eye syndrome was present in that mental dis-

order embracing among other signs a mild grade of optic degeneration, which was thought to be of autotoxic origin. In the discussion of this paper it was brought out that in the occurrence of optic nerve changes in dementia precox the syndrome was due to a strong tendency to neural degeneration, rather than to a particular auto-toxin. It was thought that an investigation of the allied states of mental degeneracy, such as imbecility and idiocy might throw light on the subject. In the present study fully three-fourths of all the cases of idiocy showed varying stages of a retrobulbar neuritis of a degenerative character. A second object of inquiry was to see whether there were pathognomonic structural defects in the eyes of feeble minded children and idiots comparable with other grosser defects mental and physical. The negative findings in this part of the work have been disappointing. It seemed that the eye defects did not extend beyond those of mere functional incompetency of vision in idiocy. The defective central enervation might account for this lack of visual acuteness. The study was made in the Randall's Island service where there were 1,000 cases to select from. Fifty cases each of feeble minded, imbeciles and idiots were chosen, but of these only 129 could be examined carefully. The imbeciles were of the unteachable grades but able to care for themselves and help a little about the ward. The idiots were of the lowest type of helpless cases in the institution. Only idiopathic cases were chosen. Examination of the eyes showed external changes in but few cases; unilateral ptosis was noticed in two feeble minded children; strabismus was found in one feeble minded child. The pupillary reflexes to light, accommodation, etc., were present in all, but sluggish in idiots. One idiot showed rigidity of the pupils. Acuity of vision, fields of vision and refractive errors could not be determined owing to lack of cooperation due to the mental defect. By using the retinoscope there were found 4 cases of myopia, 3 of hypermetropia and 15 of astigmatism. Ophthalmoscopic examination was made by means of the indirect method using a candle as the source of light. In only 106 of the 129 could the fundus be properly examined. Only 9 of 29 feeble-minded children showed normal fundal appearances. Pallor of

the temporal half and odema of the nasal half of the disc were present in 7 cases. There was slight indistinctness of the disc in two cases and well-marked neuritis in one. The early stage of atrophy was found in six cases, but advanced atrophy was not found in any case. In 4 cases there was dilatation of the veins. Of 24 imbeciles examined, 15 had eye grounds normal in appearance. Four showed pallor of the temporal half and odema of the nasal half of the disc. In one case there was slight indistinctness of the disc. One case showed well marked atrophy. There were 53 cases examined in the group of idiots and all but 11 showed a normal fundus. In 13 cases temporal pallor and nasal odema were present. On one case there was general congestion of the entire disc; in eight there was generalized pallor of the discs; in three there was optic atrophy; in one dilated veins. One patient each showed choked disc, thrombosis of the central vein, retinal congestion, retinal hemorrhage. The conclusion reached was that there was a well marked tendency to neural as well as psychic degeneration in the great majority of all grades of idiots.

Dr. Charles H. May said that he had been in the service at Randall's Island nineteen or twenty years ago when there were no facilities for making examinations but he had made observations on 60 cases. He had been unable to make examinations of the fundus. He had found a great many external anomalies and in this respect his results differed from those which the writers of the paper had reached. He had found that all the material used for squint operation was derived from the feeble minded and idiot wards; in fact, 10 per cent. of all such patients had squint. Another feature in these cases was the large number of instances of anisometropia, variations in the conditions of refraction in the two eyes. Only gross errors could be taken account of at that time as retinoscopy was not in vogue.

Dr. Henry Hawkins Tyson said that he had made observations on about 40 cases and that his interpretation of the ophthalmoscopical pictures found during examinations differed somewhat from those reported in the paper. In the feeble minded cases the appearances of the fundi oculi varied very slightly from

normal; the increased color in the veins found in some cases was such as was found in cases of auto-intoxication. He found no cases in which the margins of the papillae were blurred nor indications of an optic neuritis. In a few imbeciles evidences of arterio-sclerosis were found in the fundi. In a majority of the cases classified as idiots an atrophy of the optic nerve was found. In cases of post neuritic atrophy associated with deformities of the skull, the cause of the atrophy was a mooted question; whether the diseased nerves were produced directly by the deformity, or whether both rose from a common cause, or whether the two conditions were coincidental. In Freidenwald's report of 17 cases, 12 were oxycephalic, the ophthalmoscopic findings were given in 15 cases, of which 13 had either an optic neuritis or a post neuritis atrophy; two cases of optic atrophy were not classified. The orbits in some of these skulls were very shallow and the eyeballs protruded so that at first they might be taken for myopic globes. In the cases of optic atrophy the atrophy was of the greyish post-neuritic variety, similar to that seen in cases following infantile cerebral disease. He was inclined to the opinion that the optic nerve lesion was the result of some intra-cranial inflammation, in addition to the degeneration.

Dr. Marten Cohen said that the report was not conclusive because of the great difficulty encountered in the examination of this class of patients. In some cases it was impossible to state definitely by ophthalmoscopic examination whether the atrophy was primary or secondary. Only a microscopical examination of the disc could decide this point. In cases where they had found a normal fundus, the optic nerve tract probably escaped the general cerebral degeneration.

OBSERVATIONS ON THE USE OF LACTIC ACID BACILLI AT THE BABIES' HOSPITAL DURING THE PAST SUMMER.—*Dr. Charles Gilmore Kerley* presented this paper. He said that for many years buttermilk had been used in Holland in infant feeding and various observers had reported good results from using it. During the past summer the lactic acid bacillus had been used in the service of Dr. LaFetra and himself in the Babies' Hospital. The milk was prepared in the diet kitchen of the hospital, using

one tablet containing a pure strain of lactic acid bacillus, dissolved in four ounces of water and mixed with one quart of milk. The mixture was then allowed to stand for from twenty-four to forty-eight hours, when it was diluted with water, cereal water and milk or cane sugar. The child's caloric requirements were considered in each case. This soured milk was used in 34 cases, full milk being employed in 30 cases and skimmed milk in four. The first group treated were distinctly feeding cases, from one to sixteen months of age. In 11 of these full milk was used and in four skimmed milk. Every one but one of the 11 using full milk lost in weight and that one gained one-half ounce in two weeks. One lost four ounces in two days. Another child in fair condition lost six ounces in three days without a sign of illness and after taking the food well. The four that took the soured skimmed milk fared as badly. Three failed rapidly and died in from two to nine days from inanition. The results were so disastrous that further observations on feeding cases were abandoned. The children were not made ill by the soured milk but simply faded away. The second group treated comprised babies who were given the soured milk after intestinal diseases. It was well-known how difficult it was after a severe attack of summer diarrhoea to bring a baby back to a thriving cow's milk diet. The soured milk was used in nineteen cases after the subsidence of acute symptoms, when freer feeding might with propriety be substituted. These babies ranged in age from one to fourteen months. This milk was absolutely refused by two babies. In four others a very rapid loss in weight made it necessary to discontinue the milk after using it from two to four days. Only four of the children gained in weight, one gained 7 ounces in 16 days, one two ounces in 16 days, one 10 ounces in 15 days, and one one ounce in six days. But two in the series made a satisfactory showing. The usual methods of resuming stronger feeding gave results incomparably better and further experiments with this method were discontinued.

Dr. Josephine Hemenway said she had been impressed by two points at the Babies' Hospital. First that in cases brought to the hospital in a condition by no means hopeless, but who were

not gaining if fed on soured milk changed so suddenly and failed so rapidly that one could pick those out who were fed on soured milk. The second point was that this food failed to fatten the children, none of them showed any improvement so far as putting on fat was concerned, this was especially true of the soured skimmed milk. Their experience with skimmed milk showed that it had no value as a food unless some other element of the food was increased, as for instance, sugar. In a small series of cases of winter gastro-intestinal trouble, an initial purgative was given, then two days' starvation and then fat-free acidified milk for three or four days. The character of the stools had changed rapidly for the better under this treatment. The children were then placed on regular milk modifications. In several cases of chronic intestinal indigestion in older children the acidified milk seemed to give good results but it was given in connection with other articles of diet.

Dr. L. E. LaFetra said that there was no doubt but that the children fed on this acidified milk did worse as a rule than when fed as such cases were ordinarily fed. The results of the observation had been a great disappointment to him. It was almost impossible by rectal injection of a suspension of the bacilli to get them as far as the ascending colon, where they would do any good. If they could be used by the mouth in sufficient quantities and in good culture media, they might possibly be carried through the tract and exert a favorable action. *Dr. LaFetra* felt that there was a distinct field for buttermilk in cases that tolerated fat badly and those with putrid stools, alkaline rather than acid. He had had good results by using the buttermilk for a period of a week or ten days, using it for the purpose of changing the character of the intestinal contents. When the stools became normal he changed the diet. He had had four very satisfactory results using preparations of ripened milk made by the Walker-Gordon laboratory.

Dr. Henry Dwight Chapin said that whatever was reported of infants in hospitals should be taken with a great deal of skepticism as babies in hospitals did not do well on anything. The hospital was not a good place for them. The hospital should

be the roundup for those acutely ill, but they should be sent out as soon as possible. He had not given so much attention to the stools; as long as a baby gained in weight it was not wise to interfere with the food. If the child lost in weight and the stools were bad he changed the diet. He was of the opinion that buttermilk had a restricted use. Babies did not like it and the baby was the one to decide what it would take.

Dr. Elias H. Bartley said that his worst trouble had been to get children to partake of this food; he had only succeeded in getting two children to take it. Both of these children improved under it for two days in one case and four in the other. Then they refused to take it longer. He had tried it with more success in private practice and thought that it would cut short acute troubles unless they were due to lactic acid fermentation or lactobutric fermentation. He had not tried it in healthy babies and saw no reason for doing so. The reports of the bacteriological examinations of the tablets had been disquieting, for almost all the cultures were found to be mixed cultures and not pure ones. He thought the use of buttermilk did tend to reduce the amount of fermentation in the intestinal canal. He had used lactic acid in five per cent. solution for several seasons with good results. Recently he had used whey slightly soured with lactic acid and thought it gave as good results as soured milk. In some respects New York did not agree with the outside world, for instance, it was claimed that babies did well on whole milk. They did not do well on it in New York. In some localities they fed babies fat cream but they could not do it in New York.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section on Pediatrics.

STATED MEETING HELD MARCH 23, 1909.

DR. J. W. PARRISH, CHAIRMAN.

I. PRESENTATION OF CASES BY ALEXANDER SPINGARN, M. D.—Dr. Spingarn showed two cases. The first case was a girl of ten years, just 30 inches in height. The question of diagnosis was interesting; was the case a form of infantilism, or was it a cretin? The child came from healthy parents; there are three other children in the family and they are all normal. This child was born in a normal labor; she was breast fed. At one year of age she had measles and pneumonia. She seemed to be a perfectly normal baby up to the age of 3 or 4, when she stopped growing. Since then she has developed mentally, but not physically. Her face has gained in intelligence and she has done well at school. Her sister, one year younger, is in the same class at school, but this child is the better scholar. *Examination* of the child shows a tiny girl, 30 inches high, but bright as a child of ten. The hands are rather cold. There are no deformities of the body or extremities. The lower part of the face protrudes somewhat, (the prognathous facies), and the lower lip also protrudes. The nose is broad. These facial signs are the chief reason for suspecting cretinism. The child has been taking from one-half grain to one grain of thyroid extract three times a day for a month. The child has not grown any since the treatment was begun, but she has a much better appetite; this is often the first change noticed in cretins under the thyroid treatment. The chief argument against cretinism is the bright mental condition.

This case was examined by the members present, with much interest. Dr. Northridge said that he would call the case a dwarf; that the mental condition of the child ruled out cretinism.

Dr. Spingarn's second case was a boy aged sixteen years and nine months. He was born in Odessa, Russia. His parents were healthy; they have had nine children, of whom three are dead. Other children are healthy. At the age of four, this boy ceased growing, and it was noticed that he was bow-legged. He was treated for eight years with all sorts of methods, including the administration of phosphorus. Examination shows a boy only 45 inches tall, weighing $72\frac{1}{2}$ pounds. A boy of his age ought to be 62 inches tall and he should weigh 107 pounds. His head is nearly normal, measuring 22 inches in circumference, instead of the normal 21.4 inches of an average boy of his age. Practically every long bone shows some deformity or malposition. The tibiae are greatly bowed. One measures $8\frac{1}{4}$ inches, the other $9\frac{1}{2}$ inches. The right tibia is rotated outward and dislocated backward. The bones of the arm are so distorted that he does not move the arms normally especially above the line of his shoulders. He has both kyphosis and scoliosis. An osteotomy was performed to straighten his tibiae a year ago; this only made them worse. He is fatigued on exertion, even after walking a block or two. Mentally he is very bright. He has been in America only two years, yet he talks English well, and is in the grammar school within one year of graduation. Dr. Spingarn said that he thought this case showed a congenital form of disease of the cartilages. Adopting Koplik's classification, the case belonged in the class of chondromalacia foetalis and also in that of chondrodystrophia hypoplastica. It does not show the depression at the root of the nose, and the prominence of the vertex which these cases often show, due to the overgrowth of the frontal bone.

This disease used to be erroneously called foetal rickets.

II. RESULTS OBTAINED BY THE USE OF CONDENSED MILK MIXTURES IN THE DIARRHOEAS OF INFANTILE GASTRO-ENTERIC DISEASE. By William A. Northridge, M. D.—(See page 285).

DISCUSSION OF DR. NORTHRIDGE'S PAPER.

Dr. Hutchinson gave a summary of 175 cases treated at the Seaside Home last summer. The results, on the whole, were excellent, and he called attention to the fact that little or no medicine was used. The treatment consisted in lavage, colon irrigations, a preliminary cathartic, and careful feeding. In feeding, condensed milk mixtures were used frequently, in the way pointed out by Dr. Northridge; that is, as a temporary expedient, not as constant food.

Dr. Ager said that condensed milk was so useful mainly because it was a very weak food when diluted according to Dr. Northridge's directions. If we should dilute fresh milk one part to seven parts of water, we would get about the same proportion of fat and proteid as are contained in Dr. Northridge's mixture of condensed milk, one to twelve. By adding enough sugar to this diluted fresh milk, we obtain a food closely approximating the one to twelve condensed milk mixture. Dr Ager wondered if such a food would not have all the advantages of condensed milk. As to whey, it should be made from skim milk, as whey made from whole milk contains a very high fat proportion. Make the whey from skim milk, dilute one to two with water, and add as much fat as desired.

Dr. Read said that condensed milk used to be a fad; years ago it was *the* food for infants. It has now found its proper place, as outlined by Dr. Northridge. Its chief advantage is that it is nearly sterile; this makes it so adaptable as a food for the poor, who are unable or unwilling to take sufficient care of the cleanliness of the baby's food. Its freedom from germs is also the reason it is such a good food to tide over until the intestine is ready for other food.

Dr. Beck said that condensed milk saves calculations and dilutions, and that this is an advantage in dealing with an ignorant woman.

Dr. Spingarn said that he believed we should use condensed milk earlier in the course of a gastro-enteritis. We are too apt

to starve the child and only to use condensed milk as a last resort. Why not start in early with the condensed milk instead of waiting?

Dr. Parrish said that he was entirely in accord with *Dr. Northridge*. He had frequently seen diarrhoea controlled by changing the food to condensed milk, after barley water had been found of no use. Whey does not stop diarrhoea, though it does stop vomiting. In fact, whey has a laxative tendency.

Dr. Northridge, in closing, said that condensed milk is sterile and constipating. These are its advantages. Such a mixture of fresh milk as *Dr. Ager* described would not have these qualities, and hence would not do the same amount of good.

THE CHICAGO PEDIATRIC SOCIETY.

STATED MEETING MARCH 16, 1909.

DR. I. A. ABT, PRESIDENT, IN THE CHAIR.

SYMPOSIUM ON THE "EXCEPTIONAL SCHOOL CHILD."—Dr. McMillan read a paper on "The Examination of the Exceptional Child." (See page 271.)

Dr. E. W. Ryerson spoke of "The Parental School Child." Ever since the establishment several years ago, of a school for truants, he had had medical supervision of the inmates. The majority of those sent there by the Juvenile Court, were normal boys merely uninterested in schoolroom work and whose restless minds and bodies demanded more exciting scenes. Most had wretched home surroundings and no care. There were also those who were actual defectives.

It had been, at first, a surprise and since a constant pleasure to watch the great degree of improvement shown in every way—mental, moral and physical—after a period of training. This includes ordinary school work and is supplemented by manual and military training, games, etc.

A paper on "Eye and Ear Defects in Exceptional Children" was given by Dr. Thomas Faith, M. D. (See page 278).

Dr. Archibald Church spoke on the "Neurological Examination of the Defective School Child." In his experience with defective children he had come to be more and more impressed with the conviction that a child is a foreordained quantity. He is more than a link of a chain. The cells in the organism of the child are the same as in the father and the mother and to the child are transmitted the tendencies of the parents. It is a case of protoplasmic succession. Any attempt to make a searching inquiry into the condition of the child or to investigate his parents' social, mental or nervous characteristics, their physical nature or capaci-

ties must go into the heredity and is for this reason met with protest from the parents or guardians.

In the discussion Dr. Julius Grinker said that it was presumptuous for him to discuss the question and, perhaps, take issue with his friend, Dr. Church, who had overemphasized heredity. He said the subject of heredity had been "worked to death"; every defect of humanity had been traced to the germ plasm in which our ancestors have transmitted to us through numerous ages certain characteristics, from which we cannot escape. To his mind this thought is contrary to the law of progress which is the basis of existence. He spoke of the improvement made in our civilization, even since so short a period as the middle ages and said that we were not mere animals but had the capacity to develop beyond what was primarily transmitted to us by our ancestors. The emigrant coming to this country begins to evince abilities which would not have developed if he had continued to live under his previous restrictions. He did not even believe that disease can be transmitted in the germ plasm. Nothing has been said of somatoplasm, nutrition, environment and the proper moulding during the plastic stage of childhood. In the case of "exceptional children" he thought they can be helped by proper training and correction of obvious sense defects.

Dr. McMillan said: In reply to the question as to what standard we adopt for the admission of pupils to rooms for sub-normal children in the public schools, he would say that judgment is based not only on the family history of the child, especially with respect to neuroses of one kind and another, but also on an estimate of his status in a test given him in the laboratory. It was found convenient in addition to all this to adopt a socio-economic criterion. This is, in short, an estimate of the future possibilities of the child, in regard to earning a living. It is possible to determine with a fair degree of accuracy those children who, with special training, will be able to support themselves or, at least, will be able in adulthood to contribute to their own support under direction. Of course a few will be found who are not only able to work under direction and to support themselves

but to give assistance to others of kin or dependence. It is understood, of course, that these special children must have special teachers and especially equipped rooms for their training, and, it may be stated in pedagogical language that the subnormal child will be able at the age of 14 to carry the equivalent of the third or fourth grade in a regular course of study. You will observe at once that our estimate of these special children called subnormals is something entirely distinct from those who are only pedagogically backward. These, in turn, demand special attention and it is a measure of social economy to provide for their special training before, indeed, they fall out of contact with school influences and drift into ways of crime and waywardness. The city of Chicago will need in the future quite a number of these special rooms; but at present there are only three or four practical industrial rooms which attempt to grapple with the problem represented by backwards or retards.

There is no social stigma whatsoever touching these rooms, because, indeed, parents in each instance are prevailed upon to send their children to these special rooms and on account of the fact that the great majority of children referred to us have been at least two years in the regular course where they have totally failed to make any progress, the parents are very glad for the opportunity of sending their children where they can obtain this special instruction with a small number of pupils in a class. In other countries, to be sure, a great deal of opprobrium attaches to these rooms, because the pupils are not properly classified on admittance; but where a psycho-physical examination is given at the time of entrance so as to weed out those subnormals who border on a high-grade of imbecility, no such feeling against the room obtains.

PEDIATRICS

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Published Monthly by F. M. Crossett Co., Inc., Burlington, Vt., and 30 West 33rd St., New York.

Telephone, 781 Madison.

Editorial Office: 742 Prospect Avenue, New York City.

Telephone, 607 Melrose.

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EDITORIAL.

A notable contribution to Pediatric literature is Dr. I. A. Abt's translation of Prof. Dr. E. Feer's (Heidelberg) *Nutritive Disorders in Children and their Treatment*, which will appear in the next issue of this journal.

It is a summary of the most recent continental thought on this subject, and Dr. Abt is to be congratulated for his admirable translation.

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ABSTRACTS.

TOBACCO POISONING IN AN INFANT.—JULES LEMAIRE (*Ann. de Med. et de Chir.*, March, 1909) relates a case of acute tobacco poisoning. The accident occurred to an infant of 1 year of age. He prefaces the story by referring to the fact that classical authors describe two forms of acute tobacco poisoning: (1) The acute, evanescent form with malaise, nausea, vomiting, headache, vertigo, and cold sweats; (2) the grave form, with excitement, headache, vertigo, affections of the sight and hearing, slowness of pulse, dyspnoea, vomiting and diarrhoea, extreme weakness with coldness and stupor, ending in collapse with intense dyspnoea, failure of the pulse, and death by asphyxia. The case in point occurred on December 12th, 1908. The infant, 1 year and a few days old, swallowed a cigarette made by W. D. and H. O. Wills, known as Three Castles brand. This occurred at 6 o'clock at night, after which the infant had its usual meal and went to sleep. After a quiet sleep of about an hour the infant woke and began to cry and vomit; he turned pale, the face was covered with a cold sweat, and diarrhoea followed. Dr. Lemaire saw the patient at 9 p. m.; he was collapsed and sleepy, pale, with cold extremities, but the pulse and respiration were not interfered with; there was much yawning, and the vomited matter contained much mucus and pieces of the cigarette. Pieces of the tobacco were also found in the stools, and were more numerous there than in the vomited matter. The infant was given two cups of warm tea with one teaspoonful of cognac, and kept warm with hot water and cotton-wool. Towards midnight the child went to sleep and next morning was quite well. The clinical picture presents a case of acute tobacco poisoning in a mild form, but the diarrhoea and collapse would lead one to classify the case as one intermediate between the grave and mild forms of poisoning. Inquiry led to the fact that the kind of tobacco the cigarette contained was pure Virginia and weighed slightly over 1 gram. The case was of special interest on account of the age of the patient—namely, 1 year and a few days.

THE SUCKLING OF INFANTS.—The complaint that mothers of the present day cannot nurse their babies has during the past few years been shown to be unfounded. Medical men know on the evidence of practical experience that attempts to suckle seldom fail if made in accordance with scientific teaching and car-

ried out with a reasonable amount of perseverance. The work of the late Professor Budin in Paris clearly shows how great is the importance of proper attention to this subject, and those who are interested in the matter cannot do better than study a very able article by Dr. Janet Lane-Claypon which appears in the January number of the *Nineteenth Century and After*. In Germany the pioneer of the movement was Dr. Oppenheimer, and the consultations at which mothers are given advice and assistance with regard to the management of their babies have been instrumental in preserving the health of large numbers of babies. Dr. Vidal, of Darmstadt, has during the past three years followed the example of Budin and Oppenheimer, and has published recently a brief account of his results. It is not, he finds, sufficient to instruct the mothers during the lying-in period to suckle the babies. As soon as the doctor's back is turned, the mother, the grandmother and the neighbours give their advice; all the scientific teaching is thrown away, and the baby gets a bottle. The amateur counsellors probably do not know that in the "good old time" 30 per cent. of their infants died. Dr. Vidal states that vanity and comfort are rarely taken into account by the German woman. Usually she is over-anxious, and believes that she has not enough milk to satisfy the infant. She complains that the child cries so much. The mothers are taught at the consultations that the act of sucking causes the flow of milk, and if a baby is given a bottle it will refuse after a time to suck at its mother's breast when it can get milk with less trouble. This is the chief danger of the so-called *allaitement mixte*. During the three years Dr. Vidal has only had to tell one mother that she had not enough milk. He was able to compare the infants brought to the consultations, who did well without exception, with those managed according to amateur advice, of whom no small percentage died. He gives examples of the advantages of the consultations to mothers who had lost child after child from diarrhoea before they were taken in hand. At times the first attempts to make the baby take the breast are difficult; an infant may even refuse to suck for a whole week, and the mother and the midwife are very apt to lose patience. The same answer which can be given to the assumption that the quantity of milk is insufficient may apply to the assertion that the milk is poor in quality. Neither the mother nor the midwife has any conception with regard to the normal quality of mother's milk, and the best proof that the milk is good and sufficient is to be found in the fact that the baby thrives on it. This Dr. Vidal has been enabled in each case to demonstrate to the mothers at his consultations. The results which he has obtained, therefore, tally with those obtained in Paris and elsewhere where similar consultations have been organized. The saving of life and the diminution of days, weeks, and months of sickness are so striking that we do not

hesitate to say that one of the most important reforms in hygiene called for at the present time is the institution of places where mothers may bring their healthy babies for inspection and where advice and assistance in the matter of the proper management and care of the infant are provided.—British Med. Jour., April 24, 1909.

TUMORS OF THE CEREBELLUM IN CHILDREN.—Hepfner (*Wratschebraja Gazeta*, No. 11, 1908). The patient was a girl six years of age, in whose case the diagnosis of cerebellar tumor was arrived at by exclusion during the patient's lifetime, certain symptoms having suggested an organic affection of the brain, aside from an accurate localization of the growth. These symptoms consisted in persistent headache, prolonged vomiting without visible involvement of the gastrointestinal canal, complete inability to stand, sit or even hold the head up; at last, spastic paraplegia of the lower extremities. Furthermore, choked disk was distinctly demonstrable. In the differential diagnosis a tumor of the brain cortex was excluded by the absence of all psychic disturbances, unilateral paralysis of the extremities, or convulsions. An affection of the middle brain was contraindicated by the absence of paralysis of the oculomotor nerves, ptosis or strabismus, as well as contralateral hemiplegic paralysis of the extremities. The tumor had accordingly to be located in the cerebellum, this assumption being justified by the clinical symptoms presented by the patient. While headache, vomiting and choked disk are general symptoms which are produced by intracranial neoplasms of different localizations, these symptoms are most distinctly marked in tumors of the cerebellum. The growth was found to be a very large sarcoma, which exclusively occupied almost the entire cerebellum, without extending to the other parts of the brain. The case, therefore, furnishes an interesting contribution to the study of malignant tumors of non-tuberculous character in children. The patient came under observation in the clinics of the Academy of Medicine in St. Petersburg, service of Professor Gundobin.—Med. R. of R., April, 1909.

INFANTILE SCORBUTUS, EARLY DIAGNOSIS OF.—(H. Koplik, *Archives of Diagnosis*, January, 1909). The writer emphasizes the importance of early diagnosis of infantile scorbutus. The picture of the affection, as outlined in the text-books, is one which applies to cases in which the disease has gained full headway; the patient has suffered for some length of time and has developed the full symptomatology of the disease. The disease follows invariably in the wake of some error of nutrition, or, in artificially fed infants, on an error in the composition of the food,

wholesome or otherwise, or in its treatment after having been made up for the infant. Cases also occur in breast-fed infants when the breast may have had a denutritional composition, or in infants partaking of raw milk, excellent in itself, but given to the infant in a denutritional state. This should always be borne in mind, as the physician is apt to reject the possibility of scorbutus if the infant is taking raw milk. Many infants taking sterilized food never develop symptoms of scorbutus, and in others symptoms may be held in abeyance by the administration of fruit juices. It is exceedingly uncommon to see the disease in infants before the age of 5 months. The writer believes, therefore, that scorbutus may develop in any infant whose food is, or has been constructed on denutritional lines.

The first signs of latent or incipient scorbutus are a mild form of anæmia, pain in the bones and joints only elicited by pressure or manipulation, and the appearance of blood in the excretions or in the vicinity of the bones or periosteum. It is not an uncommon experience to see scorbutus in infants, at about the sixth month of life, who are apparently thriving, and who give absolutely no symptoms such as would lead one to suspect any scorbutic tendency. In such infants the teeth may not have erupted. Deep pressure on the tibiæ will cause these children to wince, as if there were some tenderness of the bone. Formerly this was interpreted as being due to rickets. Such infants may be rachitic, but the tenderness in question is scorbutic. The test of the correctness of this supposition, in the face of the absence of any symptoms otherwise of scorbutus, is the rapid response of such infants to a change in the diet toward warding off the full development of scorbutus.—Monthly Cyclopaedia and Med. Bulletin, April, 1909.

STANTON, E. M. CONCERNING THE TECHNIC OF SKIN GRAFTING.—*New York State Journal of Medicine*, January, 1909.

In his summary the author says:

1. Graft either on a freshly cut, noninfected surface or on a clean, firm, granulating surface without curetting or interfering with this surface in any way.
2. Take the grafts from the individual to be grafted.
3. In the majority of cases a general anesthetic is unnecessary.
4. Spread the grafts directly upon the surface to be grafted, without first transferring them to normal salt or other solutions.
5. See that the grafts completely cover the area to be grafted.
6. Cut the grafts so as to use the deeper epithelial layers of the skin but not so as to include the connective tissue layer or corium. Grafts cut too thick have a whitish, opaque appearance,

whereas properly cut grafts have a distinctly translucent appearance.

7. Dress with forty or more layers of plain sterile gauze held in place by narrow strips of adhesive plaster, and apply an outer dressing of cotton, held in place by a moderately firm bandage.

8. Change the dressing for the first time on the fifth day and after that as often as may be necessary to keep the wound free from purulent material.

9. Keep the grafted area at rest during the first week or ten days and if it is an extremity, elevate the same to lessen congestion of the part.—*Jour. Am. Med. Sciences.*

ACUTE RHEUMATISM IN CHILDHOOD.—In an article in the *Edinburgh Medical Journal* for January, 1909, COLMAN after discussing this subject generally reaches the following conclusions as to treatment:

The first requirement is rest, bodily and mental, absolute and prolonged. The duration must vary according to circumstances, but it is better to overdo it rather than the reverse.

Opinion varies greatly as to the value of salicylate of soda in endocarditis.

In cases such as the author has reported he is firmly convinced of the great value of the drug. Strychnine and digitalis are valuable, especially the latter, but its use requires careful and daily watching. Small doses of bromide he has found most useful in the early stages; these children are usually excitable, and the bromide enables them to rest much better. Later, the necessary drug is iron, given with or without the salicylates. The author prefers the ammonio-citrate of iron, but probably any easily assimilated preparation is equally good. He has found that both iron and salicylates are readily taken by children in ordinary aerated lemonade, and given in this way, medicine time is looked upon by these children as one of the most pleasant episodes in a weary illness.

As to diet, the author needs only to say that it should be simple and nutritious, and that every care should be taken to avoid any flatulent distention.—*N. Y. Med. Jour.*

BOOK REVIEWS.

SURGICAL DISEASES OF CHILDREN.—A Modern Treatise on Pediatric Surgery. By Samuel W. Kelley, M. D., Professor of Diseases of Children, Cleveland College of Physicians and Surgeons; Surgeon-in-Chief, Holy Cross Home for Crippled Children; Pediatricist, St. Luke's Hospital and City Hospital; Pediatricist and Orthopedist, St. Clair Hospital, etc., Cleveland, O. Octavo, 768 pages, over 300 illustrations, cloth, express paid, \$5.00 net. E. B. Treat & Co., Medical Publishers, 241-243 West 23d Street, New York.

This work marks an important epoch in Pediatrics in this country for it is the first of its kind by an American author. Notwithstanding the great advance made in Pediatrics the past few years, the surgical side, as a whole, has been somewhat neglected for few surgeons have devoted the necessary time to acquire the technique of the successful Pediatricist. It is true of surgical as well as medical pediatrics that some disorders are found at no other time of life, while many others "present different pathological phenomena, run a different course, require different treatment and arrive at a different result from what would be usual in the same disease in the adult."

It is too often true that the surgeon unused to the handling of children frightens them with his lack of skill and is tempted to make a hasty and superficial examination. This Doctor Kelley takes up most carefully in the first chapter on Examination and Case Taking, and wisely remarks that as to the personal examination of the infant or child, "although the surgeon should have a methodical plan, it by no means follows that he can take the steps of his examination in the order he had planned. He should be prepared to begin at either end or any place in his list, or to vary his program instantly, according to the behavior of the patient."

In preparing the patient for operation it may take several days to thoroughly empty the intestinal tract, and in children able to run about, a few days in bed previous to the operation renders them more reconciled afterwards.

The author prefers ether as an anesthetic for children and advises its use in many minor operations.

Shock is an important factor in operation on children, and the author agrees with Bloodgood who believes that the rough handling of tissues is more apt to cause shock than the anesthetic or exposure of tissues to the air.

If pain follows the operation an opiate should be given and a certain amount of "mothering" seems necessary to the successful outcome of operations.

Chapter II treats at length on Surgical Pathology of the developing period, a most important subject to the surgeon.

In the chapter on Hernia, Doctor Kelley says that the conical truss pad so often advised does more harm than good, and presents his own truss, a most ingenious one, in fact it is the only one that stays where it is put.

While much space is devoted to orthopedics; syphilis, tuberculosis, surgery of the lymphatics, of the air passages, of the abdomen, the rectum and anus, and the genito-urinary organs, are fully covered.

The volume contains about three hundred illustrations mostly original with the author; the text is in good style and the index is complete. This work is necessary not only to the surgeon, but to all who treat children.

PEDIATRICS

Vol. XXI

JUNE, 1909

No. 6

ORIGINAL ARTICLES

NUTRITIVE DISORDERS IN CHILDREN AND THEIR TREATMENT.

BY PROF. DR. E. FEER, DIRECT., HEIDELBERG UNIVERSITY
CHILDREN'S HOSPITAL.

TRANSLATED BY DR. ISAAC A. ABT, CHICAGO.

Artificial feeding of infants in first two years of life presents peculiarities in digestion and assimilation and, also, certain pathological changes which occur at no other period of life. The nutritive disorders present the most important chapter in early childhood and are, also, the most difficult. They present the most inviting field for scientific work and during the last ten or fifteen years, pediatricians have been rendering diligent service along this line. The disease effects occurring as results of improper artificial feeding in infancy are so different from the diseased conditions in later childhood and adults, that they require a special study and the most intense interest of the pediatrician.

A universal and satisfactory classification of digestive disturbances has not been written and nearly every author has his own classification. Formerly it was the custom to endeavor to make anatomico-pathological division, with reference to clinical symptoms and bowel movements. This classification is referred to as dyspepsia, bowel catarrh and enteritis. A classification according to anatomical distinctions is for the most part unsatis-

factory. For example, the severest symptoms occurring in life—so-called cholera infantum; postmortem examinations show the gastro-intestinal canal to be nearly intact. An exception to this is found in cases of follicular enteritis or ileocolitis. A distinction between gastric and intestinal diseases is practically impossible (pyloric stenosis). Physiological research at the present time shows the dependance of various portions of digestive tract one upon the other, and in infancy, diseased conditions tend to involve the whole tract rather than any isolated portion.

The division still adhered to, such as dyspepsia, intestinal catarrh, enteritis, is convenient, though it is not well-founded or directly applicable. How often we find in the same patient in a few days a rapid change in the character of the stool; so that yesterday we might have spoken of dyspepsia—today intestinal catarrh and in a few days as enteritis. As a matter of fact, it often depends on the nature and quantity of food. Frequently we are in the embarrassing condition to be in doubt as to what appellation to give the diseased condition; and if a case comes to autopsy, there is hesitancy about what diagnosis should be given to the pathologist. Fortunately for the clinician, after the autopsy the pathologist is often in the same position.

Czerny and Kellar first showed that the earlier classifications of intestinal disturbances are too narrow; that aside from the disturbances in the chyme and gastro-intestinal mucosa, pathological changes occurred in the intermediary metabolism and that these latter changes played a most important part. They, therefore, introduced in place of the older, narrower view, the term "disorders of nutrition" and this designation has received universal recognition. One is not seldom called to witness a fatal case of nutritive disorder where normal feces are evacuated. The sub-division of the nutritional disturbances presents great difficulties.

Czerny and Kellar present the following principal groups:
Nutritive disturbances—

- A. From infection.
- B. From alimentation.
- C. From constitutional sources.

This is not like the older attempts to differentiate the alimentary from the infectious disturbances. In practice this classification is difficult to maintain, as it is almost impossible to tell where an alimentary disturbance stops and an infectious one begins. If a previously healthy infant with a normal digestion suddenly is given a great increase of food and, thereupon a disturbance of digestion is set up, this may be spoken of as an alimentary disorder. If on the other hand, a child that is progressing normally suddenly takes sick with fever and discharges mucopurulent feces, and if the fever continues after protracted starvation diet, or if other members of the family fall ill with a similar disease, we surely have to do with a genuine infectious enteritis. Most often, however, the conditions are not so clear and the etiology is uncertain. The more we inquire into the nature of the nutritive disorders, the more we are impressed with the fact that ectogenous and endogenous infections play only a subordinate role, that most of the nutritive disorders are from alimentary origin, even if in the later course of the disease infections occur secondarily and by producing toxins and through bacterial invasions become destructive.

It must not be denied that specific infections of the chyme and intestines, especially in the summer, do occur, as for example, streptococcus infection of Escherich and genuine dysentery. Clinically, alimentary and infectious disorders are difficult to differentiate. We see not infrequently the enteric stool, with blood and pus, in course of an alimentary infection. Fever does not always indicate infection. Only a short time ago, Finkelstein showed that pure alimentary injury might lead to fever. There are those who think, perhaps correctly, that the alimentary intoxications of Finkelstein are composed not only of the alimentary component but possibly, also, of bacterial invasion and activity.

Czerny and Kellar consider under the nutritive disturbances which are of alimentary character that the disturbances may be produced by foods which are quantitatively or qualitatively unsuited, though not in any way decomposed. These are the dis-

turbances produced by milk, the disturbances by starch, or in other words, milk dyspepsia and starch dyspepsia.

The most widespread and most important disturbance is that produced by milk. This occurs frequently in children who are exclusively, or for the most part, fed with pure cow's milk, or who are fed excessive quantities. In these cases, the weight becomes stationary and if the milk be increased still more, the baby loses in weight, which may eventually lead to atrophy. As a characteristic point in this form of disturbance may be noted the dry, hard, gray or white, strong alkaline stool, which is extremely fetid in odor and which is designated as a fat-soap stool.

Owing to the insufficient absorption of milk fat, fatty acids separate, which combine with the alkalies of the body (especially sodium) and also the earthy alkalies, and produce "alkalipenie" and lead to a relative acidosis in the intermediary metabolism. Further indication of the milk disorder is the increase of ammonium, excreted in the urine, anemia, excessive sweating, meteorism and diminished tonicity of muscles.

The disorders produced by starch occur more rarely. They are observed most often where an exclusive starch diet is given; in these cases sugar is usually administered. The feces are not so characteristic as in the cases where milk diet produces derangement, but are brown and smell and react acid. After continuing for a while, mucus is produced and decomposition, as evidenced by foul-smelling feces, develops.

At first, the tonicity and general appearance seem normal and there is no thought of illness. Later, atrophy occurs with hypertonicity of muscles, most marked in the lower extremities, and one usually finds increased electrical irritability of the peripheral nerves. Atrophy occurs most readily where milk and the mineral salts are withheld. A special susceptibility to secondary infection is noted. Thrush, otitis, pneumonia, abscesses and furunculosis, and the children show diminished resistance.

Czerny and Kellar deny the occurrence of injury produced by milk proteids. Formerly the important distinction between

breast milk and cow's milk depended upon the conception that cow's casein was precipitated in coarse flocculi and was difficult of digestion. To many physicians, the coarse precipitate, difficult of digestion, is a tradition hard to overcome. One can convince himself that the casein coagula in boiled and thinned milk fall down as fine flocculi. Biedert believes that the large proportion of casein of cow's milk produces an injurious product of digestion in the lower part of the bowel, and in this way leads, secondarily, to decomposition and toxemia. Biedert continues that the white flakes in the dyspeptic stools are undigested casein. Closer observation discloses that they are mostly fat and fat-soaps; that the decomposition in the intestine proceeds from the intestinal secretions and that the casein of the cow's milk is nearly as well digested as that of breast milk.

The proposition then seems proved that casein of cow's milk causes no intestinal or digestive disturbances. Czerny and Kellar feel justified in excluding the possibility of an injury produced by casein, and in this they are corroborated by nearly all of the more recent authorities, in opposition to Biedert and his pupils. Feer, the author, thinks however that the injurious effects of casein is possible. He says that the injury, perhaps, does not occur in the intestine, as maintained by Biedert, but in the intermediary metabolism. Agreeing with Heubner, Feer thinks that artificially fed infants use up more energy than breast-fed babies, and he thinks that with breast-milk the least energy waste occurs.

An excessive amount of proteid is an irrational method of feeding, because it is delivered to the organism as an unusable ballast.

It is a remarkable fact, not usually considered, that only 7.5% of the caloric value of the infant's food is composed of proteid; in the calf, 21% is proteid. The energy consumption needed in a state of health is 100, so the organism requires to prevent loss of weight 106 of sugar, 114 of fat and 140 of proteid.

In conclusion, the point may be brought out that the feeding of an infant with cow's milk causes excessive work on the part of the infantile digestion and metabolism and takes place

at the expense of excessive energy production, and this in itself may produce permanent injury to the organism.

It seems that we are justified to speak of proteid injury in other directions. While the fat and the sugar perform their tasks by a relatively simple and uncomplicated chemical process and are consumed without residue, we must conceive that the proteid must undergo a complicated process, particularly in its reduction to urinary end products and in this way requires from the intermediary metabolism and the kidneys a useless labor, for the most part, if present in excess.

The organism is in a position to resorb large quantities of proteid as the most important constituent of the food and has the power in times of nutritive disturbances and loss of body weight to retain nitrogen. If proteid is given in excess though, the nitrogen is *not* retained.

From clinical observations, it seems apparent that excessive ingestion of proteid may produce injurious results. It is striking that often the severest disturbances of nutrition, which occur under the picture of cholera infantum, attack those children who have been fed with whole milk, and where there was no apparent difficulty with fat digestion, disturbances which are more infrequent with a high fat and low proteid milk. One must think of the possibility that in the feeding of excessive and useless proteid, the metabolic function is overloaded and fatigued, so that eventually every function becomes paralyzed for the elaboration of the fat and sugar.

One may, also, consider injuries produced by the inorganic salts. The mineral metabolism of infancy is not sufficiently elaborated, so that we may speak in any dogmatic way. But the work of L. F. Meyer (Breslau) and others have called attention to this subject. The salts of human milk whey are qualitatively and particularly quantitatively different from that of cow's milk whey. This difference may result in some harm to the infant. Meyer has shown that in certain disturbances of infancy, cow's milk whey may produce certain disturbances, while breast milk whey, with the addition of fat and proteid from cow's milk, is well borne. On the other hand, cow's milk whey, with addition

of fat and proteid from human milk are poorly borne; in other words, the whey of cow's milk seems capable of causing more digestive disturbances than the whey of breast milk in this experiment.

Nowhere can we see more distinctly how water osmosis depends on salt metabolism than in the infant. It is possible during the period of starvation to prevent for days loss of weight by the administration of salt solutions; or if a marked increased amount of salt solution is given, edema may be produced. The salts contained in whey act similarly. In the disturbances of nutrition a poverty of mineral salts often exists which occurs in the highest degree in cases of prolonged starch feeding, but, also, in those cases where injury is produced by milk. As a matter of fact, the injuries produced by mineral salts are frequently combined with injuries combined with other elementary food stuffs. An independent injury produced by mineral salts has recently been the theme of Finkelstein. He thinks that the constitutional infantile eczema is due to an excess of mineral salts in the organism. Finkelstein treats these eczemas by diminishing the amount of salt. To do this, he diminishes the whey by taking away $\frac{4}{5}$ of its entire quantity and then adds the remaining fat and proteid curd to the (whey) supplying the loss of whey by adding the same quantity of barley water to the mixture. It has been questioned in several quarters whether the diminution in quantity of mineral salt is capable of curing the eczema. Other clinicians have found that by diminishing the fat as well as the salt, an effective treatment for eczema was at hand.

Finkelstein has recently suggested a method of testing the function of nutrition in the alimentary tract and in the entire organism. He gives a certain quantity and quality of food and then notes the reaction. He observes four stages of nutritive disorders.

In a carefully proportioned diet, the increase of diet produced bad stools and temperature exacerbations. In the stage of decomposition, the tolerance for fat, and later for sugar, is

severely damaged. At this point, reduction in weight occurs and exacerbations of temperatures.

The severest degree of nutritive disturbances is marked by the condition Finkelstein calls intoxication. Disturbances of consciousness, deep respiration and alimentary symptoms occur, a condition formerly known as intestinal catarrh. There exists now a condition of "alkalipeni" in the intestine and acidosis in the blood. The intoxication does not depend upon any specific intestinal flora, or any acid reaction of the intestinal canal.

After considering all of these elementary points, it must be admitted that no satisfactory classification of disorders of nutrition is at hand. Indeed it may be asked if it will be possible to find an inclusive classification which will be universally accepted, especially in view of the extraordinary complexity of these disorders. We have to deal with an admixture of alimentary, toxic, microbic and constitutional disorders. Frequently it is impossible to differentiate acute from chronic disorders. Frequently one learns only after the lapse of some time that disorders which occurred, apparently, suddenly, though for a long time previously there existed bad feeling and diseased symptoms which were not noted.

The clinical examination and estimation of the condition of the stool was formerly considered the most important single feature. The character of the stool is one of the most important indicators, but it is well to associate it with temperature, weight, general appearance, psychic state, tonicity of muscles, etc. In order to control the daily feeding, it is well to observe closely the stool. A short review of the appearance of the infant stool will not be out of order. In the breast-fed baby, we observe the so-called normal breast stool, the golden yellow color, the paste-like, homogeneous consistency and the faintly sour, not unpleasant odor. Occasionally there are frequent stools, containing a slight amount of mucus and some white flakes. Sometimes they tend to become rapidly green. Unfortunately mothers and nurses will wean the baby on these latter indications and start artificial feeding. If the physician examines not only the bowel movement, but also the general condition of the child

and finds the general condition good and the child progressing, he is convinced that there is no reason to wean the baby and to expose it to the dangers of artificial feeding. Most of these children are simply overfed and if they are given the breast less frequently the stools usually improve in appearance. Many healthy breast babies never have quite normal stools. The stool of some babies with cow's milk is usually thin and shows numerous white flakes, which are probably fat residue; or the stool may be bright yellow which upon being broken presents a white shiny appearance. Sometimes the stool has a slight odor of decomposition, accompanied by a slight alkaline reaction. It is not the casein that has undergone alkaline decomposition, but the intestinal secretions themselves. In cases of protracted starch feeding, large quantities of mucus undergo processes of decomposition and contribute to the odor.

The reaction of the cow's milk stool is usually alkaline. This is true, also, of buttermilk feeding. Acid reaction indicates insufficient digestion of the fats or of the carbohydrates. In cases of incomplete fat digestion, one often notices fatty acid crystals, as well as neutral fat and fatty acid soaps. These stools often smell rancid like butyric acid. In cases where the acid reaction results from insufficiently digested carbohydrates (sugar and starch) one observes frequently the emission of considerable gas or a foaming fluid evacuated, which has a strong acid odor resembling acetic acid. Insufficiently digested starch may be detected by the iodine reaction.

It is frequently noted that starch may be digested if given by itself, while if milk be added the iodine reaction is observed, indicating that the addition of milk under some circumstances interferes with starch digestion. Staining of the stool smear by the method of Weigert-Escherich serves to differentiate a normal breast stool (Gram positive bifidus) and cow's milk stool (Gram negative coli) from the pathological stools (staphylo-streptococci).

If we review the remedies which we have for the treatment of nutritional disorders of infants, the most important is breast milk. Whatever else may be said or claimed about infant's

food, it may be noted that up to the present time there is no artificial method of procedure known which can be instituted with certainty from the first days of life.

If an infant receives breast milk during the first four weeks, or the first fourteen days, or even the first week, we may say that his chances for an undisturbed development are increased.

The details concerning the quality of milk and its production on the farm are such well-known facts that they are not mentioned here.

Formerly, the plan of feeding rested entirely upon the endeavor to make cow's milk resemble in its chemical composition, breast milk. Special stress was laid upon the casein, or upon its digestion in various ways. Numerous observations and metabolism experiments have shown that casein of cow's milk is well digested and that the fat is too feared. It is a matter of general experience that in digestive disturbances, fat free milk gives brilliant results.

Milk must be obtained by the centrifugal process. By the mere skimming of milk with a spoon, a product is obtained which contains 2% fat. Whey is a very valuable food substance and differs from fat free milk only by the absence of casein and a smaller quantity of mineral salts. The fact that there appears to be no difference in the digestibility of fat free milk and whey indicates the ease with which the casein is taken care of. Mineral salts are an important addition to the infant's dietary and it is possible that the value of whey and fat free milk in digestive disturbances depends upon the salt content.

The carbohydrates occur in artificial foods in the form of sugar or the various infant foods. Milk sugar in artificial feeding is a valuable addition; in some cases it aids in fecal evacuation and it seems to ferment in a normal way in the intestinal tract and assists in maintaining the normal flora of the bowels. It is not clear why milk sugar in artificial food seems to contribute less to an increase in body weight than other forms of sugar. Cane sugar may be given to infants who are more than three months old without injury. In excessive doses, it causes acidity and dyspepsia.

Maltose is extremely valuable. Its greatest value consists in the fact that it is split up in the bowel and is readily assimilated. If maltose is given in any excessive quantity, the stool becomes acid and diarrhoeal. Kellar's soup is recommended, as is also Soxotet's Nähr Zucker.

Among the insoluble carbohydrates may be recommended flours from wheat, rice and barley. Three per cent. decoctions may be made, using these flours, boiling them for 30 minutes as recommended.

In the treatment of nutritional disorders of infancy it should always be the endeavor to gradually bring the food to such a strength as would be indicated for a child of the same age and weight in health. The quantity of diluted or undiluted food for a normally developed infant during the first weeks should be from 100 to 500 gms. (3 to 15 oz.) a day; 700 grs. (20 oz.) in the fourth week; 800 gms. in the eighth week (26 oz.); 900 gms. in the third month (30 oz.); 1,000 gms. from the fourth to the sixth month (33 oz.) and to the end of the year 1,200 gms. (40 oz.).

In nutritional disorders, the same quantities may be given if the body weight is not much below that which it should be for a child of its age. In cases of severe nutritive disturbances when only small quantities of food are given, it is advisable not to dilute the milk very much. The cow's milk should be diluted in the following way: $\frac{1}{3}$ milk, $\frac{2}{3}$ water in the first week; $\frac{3}{7}$ milk, $\frac{4}{7}$ water in the fourth week; from then on $\frac{4}{8}$, $\frac{5}{9}$, $\frac{7}{10}$, $\frac{8}{10}$ milk from the second to the sixth month.

To estimate the quantity, the excellent rule of Budin, which calls for a daily amount of milk equal to $\frac{1}{10}$ of the body weight, may be employed.

From the second month, small quantities of starch may be added to the milk, increasing 5 grams monthly, so that at the sixth month 20 to 30 grams are added.

The number of meals should be reduced to five at the end of the first month. New born babies may be given six feedings at the most. In nearly all of the digestive disturbances, five meals are held to be the correct number. If there is great weakness

or severe emesis, eight to ten meals may be given; or it may be necessary to give meals in teaspoonful doses every half hour.

In order to maintain normal health, the child should be given sufficient quantity of food. Overfeeding is one of the most important causes of diseases. As a control of the amount of food, the number of calories for the body weight should be calculated. According to experience, a healthy child requires for each pound of body weight 45 cal. in the first three months, 40 to 45 cal. in the second three months and 32 to 35 calories at twelve months.

100 gms. of whole milk or buttermilk	700 C.
100 " " malt soup	80 C.
100 " " fat free milk	40 C.
100 " " whey	20 C.
100 " " oatmeal water 3%	12 C.
100 " " barley water	5 C.
100 " " flour-sugar	100 C.

Premature and atrophic children often require 140 to 120 calories. The energy quotient offers a useful scale. It would be missing a point if one thought that he were dealing with an absolutely positive method. The individual requirements vary greatly. For example, the salts which are not considered in the caloric considerations are of great importance.

Frequent weighing of the infant on reliable scales is of great importance; the infant should be weighed every second day. The food should not be increased as long as the child is gaining in weight. It is a mistake to think that an increase in the age of the child indicates an increase in the strength of the food.

The interpretation of the changes in weight is not easy and requires considerable experience if one would not fall into error. Very striking are the increases in weight which take place when foods of low value or containing a large quantity of mineral salts (such as whey and skim-milk or even salt solutions) are given.

These increases in weight may be explained by marked retention of water, later on it is readily lost again.

DISTURBANCES IN BREAST-FED CHILDREN.

These disturbances are relatively seldom and less severe. Overfeeding, which manifests itself by vomiting and frequent dyspeptic stools, is usually cured by reducing the meals to five per day, and also by short periods at the breast, especially if the milk is unusually rich. In these cases, it is frequently of great benefit to devote one day to giving nothing but tea. The mothers frequently have a deficiency of milk which is often not recognized. Children who are receiving milk from this breast are usually very quiet, notwithstanding the fact that they are suffering from chronic inanition. In these cases, one usually notes small, infrequent and dry stools. Mixed feeding is indicated, though breast milk should be continued at least in part as long as possible. The various lactagogue remedies (somatose) are of little value.

Pyloric stenosis. This occurs most frequently in new born, breast-fed children and strangely enough becomes most marked when a child is ten to fourteen days old, after he has apparently thrived. Severe vomiting, the scanty stool, must arouse suspicion of this affection. The diagnosis is confirmed if visible, wave-like peristaltic movements of the stomach become apparent. There is no general agreement as to treatment. Feer recommends breast milk 8 to 10 times daily in quantities from $2\frac{1}{2}$ drams to 1 ounce at a feeding. He prefers breast milk which is low in fat and, therefore, selects the fore milk which is pumped from the breast as needed. He thinks that if this milk is cool, it is better retained. He also recommends enemata of normal salt solution, or subcutaneous infusion of this same solution, or enemata of breast milk. He thinks that cataplasms on the abdomen relieve colic. It is a common vogue to employ gastric lavage. Feer did not receive any good results in this way in severe cases. He thinks it does harm.

In the most obstinate cases, it is advised to use skimmed breast milk, or cow's milk or buttermilk. Breast milk is the most reliable.

The severe habitual vomiting is a relatively infrequent gastric neurosis, which may occur in well-fed breast children. In these

cases, fat free milk gives good results. This condition must not be confused with the condition occurring in artificially-fed children as the result of overfeeding.

Most of the gastro-intestinal disturbances involve both the stomach and intestines so that it is almost impossible to separate one from the other. The majority of children suffering from gastro-intestinal diseases are artificially fed.

THE TREATMENT OF ACUTE DIGESTIVE DISTURBANCES.

If the diagnosis of an acute digestive disturbance is made on account of vomiting, bad stools or any other symptoms the first indication is to stop all food and empty the gastro-intestinal tract. These two indications are best met—*first*, by instituting a starvation day. This is best done in the form of a “tea day.” One gives the child five meals in the same quantity as if he were drinking milk. Any form of tea may be used, though Chinese tea has the advantage of being slightly stimulating, although in rare cases it produces vomiting. In order to make the tea pleasant to take, a saccharine tablet should be added. Sugar is to be avoided because it introduces an element of food which may undergo fermentation. If the tea is not taken, or if the child vomits, it should be given in smaller doses and more frequently, or it may be given cold. Tea should be continued sufficiently long, until the evacuation from the bowel contains no food residue.

One may speak of the bowel movement which ensues as a “starvation stool”; it consists of thin brown intestinal secretions. The time for this varies; it may occur in 24 hours; or at other times may take 36 to 48 hours. For a rapid evacuation of the bowel, it is necessary to use a cathartic, though it may be considered a contra-indication if the child is very weak or is vomiting incessantly. Formerly calomel was much vaunted and Feer personally has not given it for years. It may be given two or three times a day, in $\frac{1}{4}$ to $\frac{1}{2}$ gr. doses, until the result is obtained. One must remember, however, that even in normal children calomel produces pathological changes in the intestinal

flora. One experiences not very infrequently unpleasant symptoms of collapse, particularly in weak children, especially with vomiting and intestinal irritation; so Feer notes that he has not used calomel for years except in infantile eclampsia. Castor-oil is much preferable. It may be given in teaspoonful doses as needed, according to the age of the child and depending on the result produced. The action is nearly always the desired one without harmful results. In very young or very weak infants, it is better to omit the cathartic drug entirely. The use of these drugs is superfluous, especially in the mild infections. Gastric lavage or flushing to remove superfluous particles is required only occasionally, although sometimes washing out the stomach with normal salt solution relieves vomiting and distress. Irrigation of the bowels is usually unnecessary. It is indicated in those cases where it is difficult to give medicine or where the use of drugs is contra-indicated, especially where the intestinal tract contains fermenting or putrefying contents. In many cases the tea diet suffices. Frequently, however, the ingestion of water is refused or vomiting ensues. The sunken-in fontanelle, the great loss in elasticity of the skin, the loss in weight, anuria, indicate the loss of bodily fluid and the great need of the body for liquids.

Where symptoms of intoxication or acidosis ensue, such as somnolence, deep breathing, alimentary glycosuria or acetonuria, subcutaneous normal salt infusion serves a useful purpose. Three to six ounces may be injected under the skin and repeated twice in 24 hours. The normal salt infusion eliminates poisons through the kidneys and improves the condition of the depleted vascular system and stimulates the heart. The procedure is indicated in severe collapse. In the latter cases, one to two drops of adrenalin solution may be added to the infusion with good results.

In the acute cases and those of marked severity, active stimulation is indicated. As is revealed by the examination the heart tones are weak, the pulse is small, prostration is extreme. One may give twice daily, or as often as four times daily, one-half a syringe full of camphor in oil, or $\frac{1}{4}$ to $\frac{1}{2}$ grain of caffeine.

After the starvation period is terminated, one must begin very cautiously with a new food. In the severer cases, one should not begin giving food until the urine is free from sugar, until the rapid, shallow respirations have stopped and the mind is clear. This may last several days.

If it is necessary to discontinue food for several days it is sometimes better to give normal salt solution in preference to tea, since it is known that the salt solution has a favorable effect in those cases where there is a great loss in fluid from the body. This is particularly true in those children who have lost a great deal in weight. Fischel recently suggests a vegetable soup made by boiling two ounces of carrots, two ounces of potatoes, one ounce of turnips, one ounce of dried peas or beans, boiled for four hours in one quart of water in a well-closed vessel. The supernatant fluid is poured off, the fluid made up to a quart and a teaspoonful of cooking salt is added.

How should we begin the feeding after the "tea day?" It is a matter of experience that the fat as well as sugar assimilation is low and that proteids are most readily tolerated by infants; the older children can take care of the insoluble carbohydrates.

In the cases of older infants, barley water sweetened with saccharine may be given for a few days and then oatmeal water may be added.

If no further disturbance occurs on the second day, 2 to 5% of sugar may be added to the barley water. If one has tried the cereal waters for several days and the stools have improved, one may cautiously add milk, perhaps an ounce or two during the first day. If the stools continue bad, it is evident that the milk is not indicated; it is better to increase the quantity of carbohydrates. If it is impossible to proceed with whole milk, one should use fat-free milk, gradually increasing from three ounces to a pint per day. The results with the fat-free milk are usually very satisfactory. The fat-free milk may be substituted by whole milk, as the condition of the child improves. Skim milk should not be used for too long a time; three to ten days seem long enough in most cases. If the skim milk is continued for too long

a period, the infant seems to become intolerant for the digestion of fat. In cases of entero-colitis where milk is digested with difficulty, the malt soup frequently is of great service. Frequently the food agrees best which was not used before the child became ill. For instance children who were receiving an excessive amount of starch before the illness began can take milk before the acute illness subsides, and vice versa. Children who take milk well at first, take starchy food better after the illness is terminated.

The treatment of acute intestinal disorders of children from 3 to 6 months old presents the greatest difficulties. In these cases as in the ones already referred to, short periods of starvation should be instituted and then, if possible, small quantities of breast milk should be obtained if a wet nurse is accessible. One should not wait until the infant is in extremis.

If no breast milk can be obtained, the treatment is more difficult and the outlook more dangerous. The cereal waters may be tried and are frequently well tolerated. Whey and fat free milk with the addition of water or barley water frequently assist in tiding over this difficult period. In a therapeutic way, the fat-free milk does not differ much from whey, thus showing the comparative harmlessness of casein and the results are much the same. In very young infants, it is well to use the whey at first. In the severest cases, where there is a great loss in weight and fluids, fats and carbohydrates are not well tolerated. Sometimes there is an intolerance toward proteids on account of proteid decomposition in the body. In these cases, small quantities of breast milk seem to be the only remedy. Particular mention should be made of intoxications which occur in intestinal catarrhs, and in every other form of intestinal disturbances and even occur in breast-fed children. In the acute stages of this condition, even breast milk cannot be tolerated. The fat content of breast milk works harm. Finkelstein has shown that the fat and sugar content produce intoxication and alimentary glycosuria. In these cases, we are confronted with the almost paradoxical fact that breast milk may not only do harm, but may be fatal. In these cases, tea should be given sweetened with saccharine;

sugar is contra-indicated. In these cases, after two or more days, when consciousness is nearly restored and the fever has disappeared, we may give cereal waters without sugar, and later a whey or fat-free milk, not more than two ounces daily the first few days.

After the starvation period, it may be necessary to give small quantities of whey or centrifugated breast milk. One should proceed slowly in the use of whole milk and sugar-containing foods.

A very difficult and unsolved problem is how far may one proceed with the starvation period. One often swerves in the doubt between the sins of commission and the sins of omission. When the nutritional conditions of the child are still moderately maintained and when it can still draw upon its energy for nutriment, one need not fear instituting a starvation period.

THE CHRONIC NUTRITIONAL DISTURBANCES.

The chronic disturbances present greater difficulties than the acute ones. The treatment should be begun with a tea diet and cathartic. The starvation period in these cases is not without danger. It has been observed in the chronic cases that weak children who have suffered for months from intestinal disease and with whom a tea diet was instituted, would go into fatal collapse, particularly if at the same time a cathartic was used. Even the mild castor oil produces these results. It is evident that a much debilitated child is not in condition to stand a complete abstinence from food, even for a short time. In view of these experiences, it is well to avoid starvation periods and particularly the use of cathartics in children who are much weakened and who are suffering from chronic nutritional disorders. As in the acute disorders, stimulation and infusions of normal salt solution should be employed. The injuries produced by milk and those produced by starch are frequently met with, and like all chronic disorders of nutrition may lead to atrophy. The atrophy should not be considered as a distinct disease, but as the end result of a nutritional disorder.

The injuries produced by milk require a protracted period for correction; sometimes the reduction in quantity of milk is all that is required. If this plan does not avail, if the soapy stools continue, the milk should be reduced to $\frac{1}{3}$ or $\frac{1}{4}$ and the carbohydrates increased,—especially cane sugar starch or maltose. If this does not bring about the desired result, the malt soup may be tried. Or, in some cases, the buttermilk mixture seems to give better results, inasmuch as it is inclined to constipate while the malt soup produces diarrhoea.

Many of the infants who show the injuries produced by milk have such an intolerance for it that they cannot digest the malt soup or buttermilk, they do best if provided with a wet nurse.

THE INJURIES PRODUCED BY STARCH.

The chronic starch indigestion often improves when the starch and sugar are withdrawn and milk alone used. In young infants, a wet nurse should be secured, since these patients are particularly threatened with secondary infection, and breast milk feeding confers the greatest immunity. Older children may be given small quantities of diluted whole milk increased cautiously. In these cases, even fat-free milk is sometimes tolerated the best.

In many of the severe cases, small quantities of breast milk 3 to 6 ounces daily, as a supplementary feeding, seem to tide the infant over difficult places. Many times one is confronted with the difficult question as to how the food is to be arranged when the stools continue bad for a considerable time. Should we continue a minimum amount of nourishment until the stools become normal, or should we feed the child? A general answer is not possible. The cases must be decided on their individual merits. If the child continues in a state of good nutrition, one may continue with a minimum amount of food. If, however, the infant is much debilitated, it is positively dangerous to continue with so low a diet. In such cases, where there is undoubtedly some disease of the intestinal mucosa, producing an increased amount of mucus and frequent evacuations, although the stool

itself seems well digested, the food should be increased. In children who are over 6 months old, it is frequently an advantage to give animal broth, zwiebach and fresh fruit juices.

The care of the infant plays an important part. This is evident from the fact that infants sometimes thrive under the most various and irrational feeding methods, while others succumb under the same conditions. Clean rooms, free from dust, clean and frequently changed clothes, clean hands of the nurse, fresh air, are extremely important.

The children should be carried about and should be allowed some freedom to exercise their legs. Young infants should be kept warm; delicate infants should not be allowed to chill. One may sometimes note that children who are chilled fall ill with intestinal disorders. While infants should not be overstimulated mentally, the other extreme of leaving them entirely alone and neglected, as is frequently observed in children's wards, is equally to be avoided.

Medicinal treatment plays a subordinate role in these disorders and is frequently overdone in practice. Dilute HCl is sometimes indicated, though the benefits from the use of this drug are not all apparent. The addition of salt to the food, or its administration in some other way, is equally efficacious. The preparations derived from the pancreas are of doubtful value. The use of sour milk, such as is obtained by the use of lactic acid bacilli, is sometimes of distinct value. The astringents are sometimes unnecessarily administered. In cases where there are frequent mucus stools, one often sees benefit from bismuth or tannin preparations. Opium should be used with great caution, though exceptionally it may be used where there is excessive watery diarrhoea. Where there is a dysenteric condition, injections of starch water, with the addition of opium is sometimes required. Both are indicated, particularly for the reduction of temperature.

DRUGS AND CHILDREN.*

BY LOUIS C. AGER, M. D.

In their therapeutic habits physicians may be divided into three classes.

First: those who have a blind faith that there is a certain drug or more frequently a certain combination of drugs to be used in each disease. Some of these trade prescriptions as boys trade postage stamps, others are entirely satisfied with their old routine and write the same old prescriptions day after day.

Second: those who claim to have lost their faith in drugs and who pride themselves upon their therapeutic agnosticism. They go about with a tolerant air of superiority, as if they were the first to discover that many cases of illness will recover without medication. They discuss papers as if hygiene and dietetics were some new branches of medicine especially revealed to them. It is true that these branches have been woefully neglected in the past, and we have much to learn about them yet; but at present the pendulum is swinging the other way. A few of the many hours spent by senior medical students in attempting upon the cadaver major operations which they may never be called upon to perform might be spent to much better advantage in acquiring at least a rudimentary knowledge of prescription writing, and dosage.

Third: those physicians who realize how little they know, comparatively speaking, about the action of drugs; but who are convinced that proper medication is indispensable in the wisest line of treatment. Such men conscientiously attempt to apply drugs according to their known physiological action to correct or prevent the known pathological changes of disease. A few

*Read at a stated meeting of the Pediatric Section, Medical Society County of Kings, Brooklyn, N. Y., April 27, 1909.

years ago the second class was in a very boisterous ascendancy, the first in a large majority, and the third in a confident minority. At present, however, drug agnosticism is becoming as much out of style in the smart set in medicine as is religious agnosticism in the smart social set. The agnosticism was the logical and necessary step between the first class and the third. Unfortunately its convenience as a lazy man's resting place has prolonged its popularity with men who know that they ought to know better.

The careless or incompetent men,—if there are such in the medical profession,—are less dangerous in the second than in the first class. Possibly it was actual observations along these lines that led Dr. Osler to make some of his radical remarks in regard to the value of drugs.

Theoretically probably all physicians will agree to the following propositions. First in regard to diseases.

Most are self-limited.

The chief etiological factors of most are known, at least fairly well.

The pathology of most is to a considerable degree understood. These points give us a definite outline of the conditions that we are to prevent or combat by our medication and other lines of treatment.

In the second place there are certain accepted facts in regard to drugs. They produce certain definite reactions in the human body dependent somewhat upon the dose, method of administration, etc.

These reactions may be fairly well ascertained, in spite of their variability by the experiments of the laboratory and by accurate clinical observations. Unfortunately few clinicians are trained scientific observers, which accounts for the contradictory views of many observers and for some of the extraordinary drug-provings of earlier homeopaths. The multiplicity of drugs of the present day has had a distinctly bad effect upon the drug habits of many physicians. It is a practical impossibility for any man to really know the value of all the drugs that are in quite common use at the present time. The professor of therapeutics

starts the medical student at an impossible task, and slovenly drug habits are the inevitable result. There is but one way to have a practical knowledge of the real value of even the most important drugs, and that is by studying them one at a time, first as regards their physiological action and then as regards their clinical effects. Both these things have to be learned largely from text-books and current literature. Unfortunately a very large part of the literature of these subjects is either wilfully false, or else misleading because based on inaccurate observations. Probably the numerous preparations emanating from the enterprising city of St. Louis take the lead for brazen effrontery of their claims, but some of the foreign synthetics are not far behind in this respect. It is therefore of the utmost importance in our study of these topics that we go to the reliable unbiased experts. With the vast amount of good medical literature of the present day it is incomprehensible why so many physicians of good intelligence are willing to waste their time and brains on journals that are avowedly intended for the promulgation of highly unscientific methods of medication and even for the exploitation of the chemically inert products of certain drug houses. Even after eliminating such pseudo literature, great care and discretion are needed to weed out the unreliable work from even our best medical journals. One of the best known therapeutists of this country said to me a few years ago that he attended the meetings of the A. M. A., not to hear the papers, but to size up the readers and to determine which were liars. Whether a man lies deliberately in regard to his results in treatment, or whether his mind is so constituted that he is uniformly deceived by the "post hoc sed non propter hoc" argument, makes little difference in the scientific value of his deductions. In either case they are a delusion and a snare to the unwary reader.

These opinions of course apply to medication in general, but they are particularly pertinent to pediatric practice. The organism of the child may be likened to that of a delicate watch in its reaction to corrective influences. Under careful accurate treatment the mechanism responds promptly and satisfactorily, but if time and vital energy are wasted in experimental mistakes irrep-

arable damage may be done. Even the best butter will not improve a watch,—as the Mad Hatter found when he trusted his time-piece to the March Hare, as noted by Alice in Wonderland.

The recognition of this fact of the delicacy of the child's organism naturally tends to render the physician even more cautious with children than with adults. This is as it should be, provided the caution takes a proper line. When, however it is used as an excuse for practically no use of drugs,—when a man out of fear of bad results sacrifices the possibility of good ones,—it becomes rank cowardice. It would be just as reasonable for a man to call himself a surgeon and never to use his instruments. Such men join the ranks of the drug agnostics described at the beginning of this paper, not out of sincere belief but out of fear of consequences. This same mental attitude often shows itself in a different way. We hear often the expression in rather a superior tone,—“My medication is very simple.” This also is as it should be provided simplicity does not mean a woeful paucity. Simplicity of medication bears no relation to the number of drugs which a physician uses with a true knowledge of their action. In fact the larger his field of intelligent choice the simpler will be his medication. He will often be able to use one drug to cover the various indications for medication, when another man would prescribe a combination of two or three opposing drugs. There is much good suggestion for the pediatricist in both the single drug idea and also in the single dose idea of the homeopathist.

“Symptomatic treatment” is another term which is apt to conceal very lazy therapeutic habits. Most treatment is symptomatic in the sense that the symptoms are a key to the pathologic changes to be prevented or corrected, but the use of paregoric to relieve the symptoms of an acute otitis media is certainly symptomatic and at the same time distinctly bad practice. On account of the difficulties of satisfactory examination the treatment of children is particularly apt to be “symptomatic” in the wrong sense of the word.

Palatability of drugs is always to be considered but in the treatment of children it is a matter of very great importance. If

we may judge from the reports and recommendations in the medical journals of the continent, children on the other side of the ocean will stand much in the way of nauseous medication. American children, however, not only successfully resent unpalatable dosage, but they are also not benefited by it. How often we hear fond mamma's say, "Oh yes, I always use homeopathy for the children; it agrees with them so well." Nutrition is of more importance in the successful treatment of the diseases of children than any drug reaction. No matter how ill a child may seem it has a fair chance of recovery so long as its digestion and assimilation are good. I once fed a child for six days through a stomach tube while he lay totally unconscious from meningitis following typhoid. Digestion went on fairly well and the child made a complete recovery. On the other hand how quickly a child with bronchitis will go from bad to worse if it ceases to retain food. A good deal of ingenuity is often required to get the best results and we are greatly indebted to some of the pharmaceutical houses for their efforts in this direction. Considerable caution and good judgment are needed in determining how far the newer pharmaceuticals can be depended upon to give the active results promised. The work of the A. M. A. Council on Pharmacy and Chemistry is useful in this connection.

The Dosage of drugs for children cannot be calculated by any comparison of body weights, almost all drugs are relatively better borne by children than by adults. This is probably due to more rapid elimination. On the other hand there are some drugs that must be used with great caution with children. Probably the two extremes are atropine and arsenic. No drug in any dose should be administered without a definite idea as to the result that it will produce and then the amount used should be sufficient to produce that result.

Almost as much harm has been done by thoughtless and injudicious use of vehicles as by the wrong use of active drugs. A teaspoonful of the various syrups frequently administered would upset the digestion of a healthy infant. Not infrequently also children receive an excessive amount of alcohol by the use of the elixers or some of the proprietary foods.

ALPHABET FOR SCHOOL CHILDREN IN THE PREVENTION OF TUBERCULOSIS.*

BY S. ADOLPHUS KNOPF, M. D.,

PROFESSOR OF PHTHISIOTHERAPY AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

- A is for Anybody who can help prevent consumption, a child just as well as a grown person.
- B is for Breathing which you should learn to do deeply. Take deep breaths in fresh air often.
- C is for Coughing which you should never do in anyone's face, nor should you sneeze in anyone's face. Turn away your head and hold your hand before your mouth.
- D is for Don't. Don't swap apple cores, candy, chewing gum, half-eaten food, whistles, bean blowers, or anything you put in your mouth.
- E is for Eating no fruit that has not been washed or peeled, or anything that is not clean.
- F is for Fingers which should not be put in the mouth nor wet to turn the pages of books.
- G is for Giving good example to your fellow pupils and playmates by being always neat and clean, just as much so at home as at school.
- H is for Handkerchief which should be used only to wipe your nose and not your slate, desk, or shoes.
- I is for Illness of other kinds besides consumption, which following these rules will help prevent, such as colds, measles, grippe, diphtheria and pneumonia.

*From the Advanced Sheets of "Tuberculosis a Preventable and Curable Disease, Modern Methods in the Solution of the Tuberculosis Problem."

- J is for Joints where children have tuberculosis more often than in their lungs.
- K is for Keeping your fingernails clean. A scratch from a dirty fingernail may make a bad sore.
- L is for Learning to love fresh air, and not for learning to smoke.
- M is for Mouth which is meant to put food and drink into, and not for pins and money, or anything not good to eat in it.
- N is for Nose which you never should pick nor wipe on your hand or sleeve.
- O is for Outdoors where you should stay just as much as you can. Always play outdoors unless the weather is too stormy.
- P is for Pencils which you should not wet in your mouth to make them write blacker.
- Q is for Question which you should ask the teacher if you don't understand all these rules.
- R is for Roughness in play by which you may hurt yourself or your comrades. If you have cut yourself, have been hurt by others, or feel sick, don't fear to tell the teacher.
- S is for Spitting which should never be done except in a spittoon, or a piece of cloth or handkerchief used for that purpose alone. Never spit on a slate, on the floor, the playground, nor the sidewalk.
- T is for Teeth which you should clean with toothbrush and water after each meal, or when you get up in the morning and before you go to bed at night.
- U is for Unkind which you should never be to a consumptive.
- V is for Vessels like drinking cups and glasses which should not be used by one child after another without being washed in clean water each time.

W is for Washing your hands with soap and water before each meal, even if it is only lunch.

X is for X-rays which sometimes help to discover consumption or other forms of tuberculosis.

Y is for You who should never kiss anybody on the mouth, nor allow them to do so to you.

Z is for Zeal in carrying out these rules.

NEW YORK ACADEMY OF MEDICINE.

STATED MEETING, HELD APRIL 15, 1909.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

This meeting was held under the auspices of the Section on Pediatrics.

THE PATHOLOGY OF THE STATUS LYMPHATICUS WITH LANTERN DEMONSTRATION.—Dr. Alfred Scott Warthin, University of Michigan, stated that an enlarged thymus plays an important part as an etiological factor in cases of sudden death, and that back of this enlarged thymus is an interesting pathological picture which means something. While not prepared to state exactly what this meaning is he had a few ideas on the subject. Deaths due to mechanical obstruction from enlarged thymus presented rather peculiar symptoms. Enlarged thymus with sudden death associated with enlarged lymphatic glands was observed as early as the seventeenth century. In the eighteenth century the part played by the thymus was recognized. Dr. Warthin said that he had been fortunate in seeing a number of these cases. Until recently the minute or microscopical anatomy had not been touched upon. His experience had covered the whole ground usually seen in this disease. There was sudden death during anaesthesia, spontaneous sudden death, sudden death after examinations or after having gone into the water, etc. There were cases associated with marked asthma, with marked stridor; also cases in which diphtheria antitoxin had been administered. During the past four years 10 per cent. of the cases dying in this sudden manner were autopsy cases and these did not include cases of Graves' disease showing enlarged thymus. There was acromegaly in one case and pernicious anaemia in another. The fact that the enlarged thymus was a feature constantly present in all these cases had led him to look upon this

thymus as an important thing to consider. Their pathological findings led them to look around for living cases. This because of an idea that he had that this condition was not so very uncommon and might be diagnosed during life. In his own town he found two children with peculiar stridor and he could state positively that these children had enlarged thymus; the percussion area was large and definite and the X-ray showed the shadow of the enlarged thymus. Some cases had been apparently cured under simple treatment. The cases were treated on the ground that there existed a chronic affection, the symptoms would disappear sometimes to return again. In all cases there was enlargement of the thymus and in the majority there was more or less enlargement of the other lymphatic structures, not necessarily all, but sometimes one set of lymphatics and sometimes another set. The lymphatic glands presented a rather uniform appearance in all cases examined microscopically; the spleen, bone marrow and other tissues also presented a fairly uniform picture. The one absolute feature present in all cases was a hyperplasia of the thymus. The lymph nodes in two cases seen shortly after birth showed a different picture. Many lantern slides were used to illustrate Dr. Warthin's remarks.

Dr. L. Emmett Holt, in discussing the clinical features of status lymphaticus, said that he was not quite in accord with what Dr. Warthin had said regarding the clinical features of this condition. His experience with status lymphaticus had been mostly with infants from four to eighteen months of age. In these children the clinical manifestations were quite different from those that Dr. Warthin described.

In order to illustrate Dr. Holt related the case of an infant three months of age, weighing six pounds that had been very difficult to feed and had been under his observation for a month. During this time the infant seemed to be perfectly well except for symptoms referable to the digestive tract. The digestion improved and the child gained two pounds in weight, when one night about ten o'clock the child vomited and seemed quite ill. At three o'clock the next morning the child was in collapse. The temperature was 103 and respiration 100 per minute. There

was intense prostration, moderate dyspnoea, but no stridor. The child did not rally from this condition and died thirteen hours after the first symptoms. The autopsy showed acute congestion of the lungs with beginning broncho-pneumonia, the general lesions of the status lymphaticus, together with an enormous thymus resembling the one Dr. Warthin had shown in the picture. Dr. Holt said that most of his cases were of this type. They were children slightly rachitic, who had been regarded as previously healthy and who even when under observation for some time had shown no symptoms referable to the thymus. From apparently slight cause they suddenly developed most severe symptoms and death usually followed in from twelve to twenty-four hours. The associated condition which most frequently had seemed to act as a cause which precipitated the acute attack was bronchitis, broncho-pneumonia and in several cases the beginning of some acute infectious disease. Four symptoms were usually present in such cases in the terminal stages of the disease; intense prostration, dyspnoea and cyanosis, convulsions and fever, which was often very high. The dyspnoea was seldom of the obstructive type. In one case which was under observation for thirty-six hours, intubation was tried but gave no relief. Although he felt satisfied that he was dealing with an enlarged thymus, he had found it impossible to map out the thymus by percussion. He had tried this in other cases in which he felt certain that the thymus was enlarged but failed; yet at autopsy an enlarged thymus was found to be present. He therefore believed that mapping out an enlarged thymus in infants was an uncertain procedure. It could not be relied upon. Children suffering from status lymphaticus had very feeble resistance and showed great susceptibility to many adverse conditions. The slightest thing, like the prick of a needle, anaesthesia, acute indigestion, the beginning of some acute illness seemed sufficient to disturb the delicate balance and to precipitate the fatal attack. He was of the opinion that the great prostration, the extreme restlessness, cyanosis, convulsions, etc., pointed to a toxic condition rather than to mechanical obstruction. It was often hard to reconcile the clinical picture with the pathological findings.

He could not accept the obstructive theory as being applicable to all cases of status lymphaticus, especially in young infants. It was not an extremely uncommon condition, one or two examples occurring in the course of a year in 120 autopsies. The condition was often though not always associated with rachitis. The enlargement of external glands noted in older children he had not found to be common in infants.

Dr. Joseph A. Blake discussed the surgical aspects of status lymphaticus. He said that hitherto he had held a view quite different from that taken by Dr. Warthin. Some six or seven years ago he had been unfortunate in meeting with eight cases of sudden death within one year in Roosevelt Hospital. These were attributed to status lymphaticus. These cases had occurred suddenly either during or shortly after the administration of an anaesthetic. All the patients died without symptoms of obstruction to respiration. They seemed to go into collapse and to die from heart failure.

In one case death occurred twenty-four hours after the anaesthetic was administered, the patient dying in coma. In this case death might possibly have been due to necrosis of the liver, resulting from the anaesthetic although at autopsy the signs of status lymphaticus were present. One patient died at the end of an operation for Graves' disease, while the bandage was being applied. This patient had gone through the operation well, but the heart failed, respiration ceased and death occurred within a few minutes. This patient was an adult and at autopsy the thymus weighed 135 grammes. Although there was a very large thyroid as well as thymus there was no interference with respiration. There were mentioned in literature several cases of so-called thymic asthma with obstructive symptoms which seemed to have been cured by an operation which might be termed thymopexy. The thymus was not removed but stitched to the manubrium so as to relieve tracheal compression. It was shown a few years ago that in intubating these patients to relieve pressure the tubes would not pass the thymus unless they were extremely long. The question of interest to the surgeon in cases of status lymphaticus was the choice of an anaesthetic and

also whether operation should be performed at all in these cases. When only a minor operation as called for, such as the removal of adenoids or tonsils one should hesitate. The diagnosis of status lymphaticus was so uncertain that it was almost impossible to refuse to operate in cases that demanded it. Most of the cases reported had died under the administration of chloroform. Three of the four deaths that occurred under his observation were under ether narcosis. He preferred, however, to give ether and not chloroform as in his experience death had resulted from cardiac failure. It might be said that some of the deaths attributed to the status lymphaticus during the administration of chloroform might be due to the effects of the chloroform upon the liver.

Dr. A. Jacobi said that he believed that cases of sudden death during status lymphaticus were not always due to that condition alone. One case described showed at autopsy an extensive broncho-pneumonia; the respirations in this case had numbered 100 per minute with marked increase in temperature, vomiting, etc. One should remember that not only were the blood vessels of the lungs enlarged but those in the neighborhood as well. In regard to the surgical aspect of these cases Dr. Jacobi recalled an operation performed by Rehn at Frankfort-on-the-Main in 1893 or 1894 in which the thymus was not removed but was stitched to the anterior wall. There are a number of such cases now on record. Within the past two months he was sure he had seen the report of a case in which a favorable result had been obtained by the removal of the entire organ. One point should not be lost sight of, that was that the space between the sternum and the vertebral column was a narrow one, only 2.2 cm. and slight changes in the size of the blood vessels were likely to give rise to an obstruction of respiration, and to such an extent that even death might occur. In such cases occurring in children if the head was bent forcibly backward or if the babies were lying in an uncomfortable position, the difficulty in respiration was removed by bending the head forward; this facilitated the circulation. The diagnosis of enlargement of the thymus was not so difficult as it appeared to some; one who saw these cases often

enough might easily make a diagnosis in the majority of them. One could not detect the thymus gland while the baby was lying on its back, but if the baby was turned over and raised gently the thymus would be found. Dullness behind the manubrium was quite characteristic of enlarged thymus. Dr. Jacobi related his first case of this nature; when he arrived at the house the baby had just died. He tried to detect the thymus with the baby lying on its back, but could not. When he turned the baby over he could readily detect this organ. When the child was again put on his back he could not find the thymus, but upon turning him again it was readily detected. The status lymphaticus might be the cause of difficulty in respiration, occasional convulsions and sudden death partly from an hypertrophy and partly from congestion of the thymus. Laryngismus stridulus had seldom anything to do with enlarged thymus; many of these cases were due to cranial rickets. A considerable amount of cranial and meningeal infection as well as odema of the brain was present in these cases. In some cases there was a beginning hydrocephalus. If the rickets was successfully treated the patients got well but that took time. The prognosis depended upon the possibility of relieving the cerebral changes connected with rickets; until that was accomplished one could not be sure that the baby would not die suddenly. Five or six weeks were required to get the baby in non-rachitic condition. The laryngismus in most cases did not result from the enlarged thymus, but was the result of the oedema of the brain, which was connected with rachitic tabes. There were certain complications in most of the cases; most were adipose, heavy, rotund and backward in muscular development. In all these cases it was necessary to improve the general condition. The child should be carefully watched and the head kept well forward.

Dr. John A. Wyeth, in discussing the paper, referred to an article by Dr. W. Humes Roberts of California, published in the *Laryngoscope* for 1908; this paper reported a series of seven cases of death occurring in children who were operated upon for adenoids, and in which, post mortem the status lymphaticus was demonstrated. In these cases death occurred under the anaes-

thetic or immediately after the operation, and the thymus was found enlarged in every instance. A series of thirty cases was also reviewed of status lymphaticus which ended fatally during narcosis. Chloroform was the fatal agent in seventeen cases; either in six; chloroform and ether mixed in five and nitrous oxide gas in two. Dr. Wyeth said that his personal experience was confined to a single case, a boy of eleven years who came to the clinic two hours after having eaten a hearty meal. The child had received an injury to the ring finger from which had resulted infection, lymphangitis and a metastatic abscess in the epitrochlear region at the elbow. The boy had a temperature of 101 but complained of no pain. There was no appreciable lymphatic enlargement in the neck or elsewhere, and nothing in the action of the heart to suggest status lymphaticus. Chloroform was given as least apt to produce nausea so soon after a meal. A single incision was made and the abscess cavity mopped out with gauze and the anaesthetic discontinued. With its continuance the child gave a gasp, the pulse ceased at the wrist and all efforts at resuscitation which were kept up for half an hour failed. The child had died instantly from heart paralysis. At an autopsy made by the Coroner no mention of an enlarged thymus was made, but the glands of the mesentery were enlarged and soft. The physician who performed the autopsy pronounced the cause of death due to chloroform, the patient suffering from status lymphaticus.

Dr. John Howland said that there was not much for discussion upon so unsettled a subject as status lymphaticus. There was the greatest difference of opinion in regard to the cause of death and the evidence of compression. As Dr. Warthin had stated there was a division into two camps, those who believed that pressure caused death and those who did not believe this. It was undoubtedly true that evidences of compression had been found at autopsy but such observations had been extremely rare; the greater majority of pathologists had failed to observe it. Friedleben, Paltauf and Richter expressly stated that they had never seen it. Paltauf dissected the trachea from above and split it before opening the thorax as Dr. Warthin insisted upon

and always with negative results. Dr. Bovaird used this method for many years at the Foundling Hospital and had never seen compression, and during the last seven years at the same institution Dr. Howland said that his experience had been similar. It seemed to be the consensus of opinion that there was almost always lack of evidence of compression at autopsy. Some claimed that the congestion or oedema responsible for the pressure disappeared after death. This contention made clinical proof in opposition necessary. In the great majority of instances the victims of status lymphaticus died suddenly. Theoretically it was impossible to conceive that a congested thymus could exert sufficient pressure to cause death in an individual who up to the very time of his decease showed no signs of dyspnoea. The testimony of those who had seen children die suddenly was also conclusive. In the course of fifteen years Pott saw four children die of status lymphaticus while he was examining them. There was cyanosis, convulsive movements and gasping respiration, but in every instance the heart had stopped beating when he examined it and attempts at respiration were continued for a time. Such was not the case with asphyxia. Escherich had had similar experience. There was lack of great and persistent cyanosis in children dying with symptoms that had lasted for several hours. The oedema that one would expect from pressure on the great veins was also lacking. These children had dyspnoea but it was a rapid panting dyspnoea and not like that seen with actual obstruction and there was not the supraclavicular, suprasternal and epigastric retraction that would result if air were prevented from entering the chest. The dyspnoea came and went with great rapidity and death might occur without any. In cases that had been operated upon for thymus obstruction with recovery dyspnoea had been constant and unremitting. It had lasted for weeks in Siegel's and Rehn's case. It had lasted three months in Ehrhardt's case and in von Purucker's two and one half years. Almost all of those who have observed the clinical course of such cases deny that the symptoms of tracheal obstruction have been present. Therefore it seemed to him that except in a very small percentage of cases anatomical and clinical evidence of death

from pressure was wanting. We were still without a satisfactory explanation for death in status lymphaticus.

Dr. James Ewing said that while in Vienna, in 1895, he had seen Kolico demonstrate several cases of "constitutio lymphatica" at autopsy. In these cases the thymus was persistent or enlarged, the faucial, intestinal and splenic lymphoid follicles were hyperplastic, the aorta was usually small, there were often signs of rachitis, and in the older subjects there was a peculiar feminine type of physical development. These features were very striking and the condition was entirely new to him, not having been described at that time in American medical literature. Yet within a few months after returning from Vienna he had encountered two fatal cases, one a young girl who died under ether narcosis, and the other a parturient woman who died unexpectedly from a trivial hemorrhage. Status lymphaticus had now become a well recognized condition of great clinical significance in relation to sudden death. It was frequent enough to be kept constantly in mind, being found in from one to three per cent. of autopsies. It had been found by Ohlmacher in many cases of epilepsy. Hannseman had emphasized its importance in Graves' disease, and he himself had observed it in four or five fatal cases of that disease. It figured in most fatalities from short submersion in water, and was the chief underlying condition in fatalities under narcosis. Wolser had recently shown that it was present in most cases of fulminant meningitis, an observation which was verified by Norris and in Germany, so that it must stand as an important predisposing cause of fatal meningitis. Dr. Warthin's contribution seemed important as furnishing evidence from the proliferation of endothelial cells in the lymph nodes that there was a toxic element in the condition, and his observation of a case of advanced atrophy of the abdominal lymph nodes was distinctly new. The chief point of debate was the etiology of status lymphaticus. Many had thought that in young subjects death must result from sudden compression of the trachea by the large thymus, and he was inclined to believe that in such subjects this might be an important consideration. The compression of the trachea or vagus could not figure in the majority of the cases.

The disease was not one of young children but occurred in adults in whom there could be no question of death by pressure. An interesting point of view was that of Bartel, who held that the condition might have a definite relation to tuberculous intoxication. There was occasionally some histological resemblance of the hyperplastic lymph nodes to tuberculosis. An opinion largely held in France was that the enlarged thymus yielded an excess of internal secretion, with hyperthymization of the system. This theory was open to experimental study. Systematic investigation from these theoretical standpoints was, therefore, indicated. Careful clinical analysis of the cases was also discussed. Status lymphaticus was not always fatal, but must influence the course of many diseases. Yet one saw in clinical literature little reference to the part played by this condition in the so-called idiosyncrasies of disease.

It seemed to him from Dr. Warthin's contribution there could be found evidences of intoxication of some sort. There were many other conditions which would also produce it. Excessive proliferation of the epithelium in the lymph nodes showed that there was some intoxication causing it. The question of interest was what was the cause of status lymphaticus, the pathogenesis and cause of death. Some have thought that in young subjects sudden death might follow compression of the trachea, but it was quite out of the question to say that older subjects, say fifty years of age, die from tracheal compression. One of the most curious theories concerning status lymphaticus was that of Bartel who thought that there was a hypersensitization, particularly to the tuberculous poison. Dr. Ewing said that there was some histological resemblance between tuberculous lymph nodes and the lymphatic constitution, and he had found giant cells in some cases but no general tuberculosis. It was difficult to establish Bartel's theory in any group of cases. Judgment as to the mechanism causing death in status lymphaticus should be suspended until a systematic study of this condition had been made. A more careful clinical analysis should be made before expressing the opinion that it was due to an "idiosyncrasy of the patient."

Dr. Charles Norris said that he had never seen a single example of sudden death from status lymphaticus either in the young or in adults from compression of the trachea. His experience with children had been somewhat limited but he had seen many cases of this condition among adults. One might conceive that an enlarged thymus might compress the trachea, but it was inconceivable that the thymus could increase in size so suddenly through hyperaemia, as the thymus was not a vascular organ. Dr. Norris emphasized the point that a clinical diagnosis of status lymphaticus could not be made out, but that a diagnosis could be made quite readily at autopsy. He did not believe that patients died from status lymphaticus alone, but that as they grew up they became more susceptible to infections of various kinds and that this might account for the sudden deaths attributed to status lymphaticus.

Dr. William P. Northrup said that in regard to the narrowing of the trachea without causing symptoms, he wished to remind the audience that a child could breathe through the small calibre of an intubation tube. This seemed incredible in the first days of intubation. Dr. Northrup reported the case of a child, eight months old, whose tonsils and tongue were so swollen and who had so many adenoids with congestion that breathing was very difficult; the child could scarcely get air past the base of the tongue and swollen tissues and breathing was so difficult that the child could not sleep, and exhaustion was imminent. Nasal intubation was thought of. The smallest sized drainage tubes were passed through the nostrils, past the swollen adenoids and tonsils down to the larynx. The child slept seven hours that night. These drainage tubes were barely large enough to admit the smallest probe. The point that Dr. Northrup wished to make was in regard to the size of the trachea. An extreme enlargement of the thymus must be present to cause sudden death from compression of the trachea.

Dr. S. J. Meltzer said that he doubted that the sudden deaths in status lymphaticus were respiratory deaths. The phenomena of acute asphyxia were so characteristic that there would be no doubt as to the nature of the cause of that death, even the layman

present would state simply that the child suffocated. The descriptions all indicate that we deal in these cases with sudden cardiac failure. However, this could have been caused by the sudden increase in the size of the thymus. A normal heart might be arrested many times without any serious consequences but it was different with hearts that had lost their stability from one cause or another. Dr. Meltzer said that he knew from experimental experience that under certain conditions a single slight stimulus applied directly to the vagus would cause sudden and fatal stoppage of the heart. It could, therefore, be assumed that in the cases in which the stability of the heart was undermined either by chronic respiratory insufficiency as in the cases mentioned by Dr. Howland, or by diphtheria or any other infection or intoxication a sudden enlargement of the thymus might occasionally be capable of exerting a pressure upon both vagi within the thoracic aperture sufficiently strong to bring to a standstill a heart which proved to be fatal. From this point of view one could accept Dr. Warthin's theory that in cases of status lymphaticus a considerable amount of lymphoid material was being absorbed by the system. These substances perhaps assisted in robbing the heart of its "factors of safety." Dr. Meltzer said that he was interested in Dr. Warthin's view that the enlargement of the thymus was a compensatory process.

Dr. Charles G. Kerley related three cases of sudden death which occurred in status lymphaticus in which there were no evidences of tracheal obstruction. In one of these cases the child had convulsions and lived only a few minutes after he had seen it. At post mortem a very large thymus was found. The second case had convulsions and died suddenly, but without any evidences whatever of tracheal obstruction. In the third case the conditions were similar to those in Dr. Holt's case, all inhibitory control seemed abolished and the child died of exhaustion due to tremendous efforts at breathing. In this case there were no evidences of obstruction but at autopsy an enlarged thymus was found.

Dr. Warthin, in closing the discussion, said that he did not know exactly what status lymphaticus meant aside from sudden

death that did not seem to be associated with other things. It seemed that they were in danger of classing all sudden deaths as due to status lymphaticus. They should be very careful as to what they called lymphatic struma. In his opinion it meant an enlarged thymus. Where there were evidences of enlarged thymus, vomiting and other symptoms the enlarged thymus might be the cause of death. In literature, especially in France and Germany there seemed to be an increasing amount of evidence favoring the obstruction theory, pressure being upon the vagus nerve, the recurrent laryngeal or the trachea. Pressure on nerves might, of course, play a part in the causation of sudden death. Intoxications might occur but they were not the cause of death in these cases. The enlarged thymus might be the result of intoxication and this enlarged thymus might be the cause of death.

MEDICAL SOCIETY OF THE COUNTY OF KINGS SECTION ON PEDIATRICS.

MEETING HELD APRIL 27, 1909.

DR. J. W. PARRISH, CHAIRMAN.

I. Presentation of a specimen of inherited syphilis of the lung; by Dr. Paul Parrish. The specimen was the right lung of an infant one and one-half years old who had died of syphilitic marasmus. The middle lobe showed the lesion of "white pneumonia;" the entire lobe was solid, white and very hard. The rest of that lung as well as the left lung showed areas of fibrous pneumonia, which is the commoner lesion in syphilis. The liver showed large scars, but no gummata. The spleen showed multiple small gummata, with which the organ was studded. The chief interest in the case is the length of time that the child lived. Most of these cases die at birth. The child showed all the symptoms of inherited syphilis, and it was treated with mercury. In addition to inunctions, it was given hypodermic injections of the salicylate of mercury and the bichloride (gr. 1/100 to gr. 1/25). Calomel was also used.

Dr. J. W. Parrish stated that most cases of white pneumonia occur in the middle lobe of the right lung; nineteen out of twenty cases are said to have this localization.

In reply to a question by Dr. Ager, Dr. Paul Parrish said that the pathological lesion in these cases is the replacement of lung tissue by dense fibrous tissue.

II. Drugs and Children. By Louis C. Ager, M. D. (See page 343.)

DISCUSSION.

Dr. Kerr agreed with the main points of Dr. Ager's paper. There are no general rules for dosing children. A drug which affects one child favorably does not have any effect on another

one, or affects him differently. Ipecac in a large dose causes vomiting, but smaller doses frequently repeated cause irritation of the intestine; the exact amount to cause the desired result is hard to determine.

As a rule, small doses at frequent intervals should be given to children. But phosphorus works better if given once in twenty-four hours in a fairly large dose. Digitalis should be given until a certain result is obtained, and then reduced or the interval between doses lengthened; otherwise the child will suffer from the cumulative effects of this drug. In other words, drugs should be given with care, with a definite knowledge of the desired result.

Dr. Hutchinson said that we cannot treat children as if they were merely little adults. They are almost a race by themselves. Nevertheless there is a great army of general practitioners whose therapeutics is the same for an adult as for an infant, with simply a little mental arithmetic to reduce the adult dose to that of the child. Many physicians yield to the temptation of the ready-made tablet or mixture exploited by various firms. This is an easy habit to fall into. We must not try to make the patient fit the prescription or the latest "elegant" preparation, but we must carefully adjust our prescription to the needs of the little patient.

Dr. Spingarn asked if increase in weight was a true criterion of a child's health. He saw a case a few hours before, where the child seemed perfectly well, as judged by color, digestion, sleep and general appearance, but the child was not gaining in weight. It weighed 15 pounds now at nine months of age; is the child in need of any treatment?

Dr. Beck took up the cudgel for the general practitioner. He said that the general practitioner was not a bad observer and that all observation that amounted to anything was done by the family physician. We can make a *few* general rules as to treatment. Although all rules have exceptions, there are no complete exceptions to any good rule. Give your drug until you get the result you want, without regard to the doses as put down in the book.

Dr. Ludlum said that cases the reverse of *Dr. Spingarn's* were quite common. That is, we often see condensed milk babies, with rickets, who gain weight, but are evidently unhealthy, as shown by their anemia, their bone conditions, etc. In these children, the weight is surely not an index of their condition.

In therapeutics, as in most things the best place is the middle of the road, between enthusiasm and skepticism. Most drugs are best given to the children in the form of triturations, enough sugar of milk being used to make the bulk sufficiently large. With bismuth, however, children take it better if it is prescribed as a mixture with water, to be shaken violently before using. Other drugs are well given with a small amount of aromatic elixir; a few drops of this to each dose renders many drugs palatable without giving the child more than a very little alcohol.

Dr. Kerr said that he thought *Dr. Huber* had devised a scheme of representing a child's health in numerals. This might answer *Dr. Spingarn's* question. Under *Huber's* plan, the muscular tone, the condition of the eyes, the presence or absence of obstructed breathing, and other factors, were all given a numerical value; when they were all added together a number was obtained which was supposed to show the child's degree of health. The method did not work in practice, though it was tried in some of the New York Clinics.

Dr. J. W. Parrish said that weight was probably the best standard for dose for a child. Age is very unstable, as a child at one year may weigh ten or twenty pounds; surely a child of ten pounds should not have the same dosage as a child of twenty pounds. In giving digitalis, the weight is the standard for the dose, but in giving bismuth, full doses are required, even one or two drams a day in a young infant. *Dr. Parrish* has seen cyanosis caused by such doses of bismuth.

Dr. Ager, in closing the discussion, agreed with the points brought out by *Dr. Kerr* and *Dr. Ludlum*. He reiterated his plea for a careful use of drugs according to their known action to correct diseased processes.

CHICAGO PEDIATRIC SOCIETY.

STATED MEETING APRIL 20, 1909.

DR. I. A. ABT IN THE CHAIR.

This meeting was held at the Children's Memorial Hospital. Members of the staff demonstrated the following patients and specimens:

Dr. H. G. Anthony presented a case of Giant Mole. The word *naevus* is quite misleading as from its derivation it conveys the impression that the lesions are invariably present at birth, but this is not correct.

Very frequently malformations of the skin do not attain a stage of development sufficient to enable one to detect them clinically until adult life. It is therefore preferable to employ the expression, Developmental Defects of the skin instead of the word *Naevus*. There are two classes of developmental defects of the skin.

The displacements and the anomalies of development.

The displacements:—Various constituents of the Epidermis may be displaced.

Adenoma Sebaceum is a multiple small tumor formation of the skin of the face, made up of displaced and imperfectly formed sebaceous glands, which may appear for the first time as late as the fourth decade of life. It is frequently associated with mental defect, consequently is commonly observed in insane asylums.

Hydrodenomes Eruptifs, is displacement and imperfect development of the sweat glands usually developing early and producing rice-like tumors of the skin of the chest and face.

Benign Cystic Epithelioma is a displacement and an irregular growth of clusters of epithelium cells of the rete, which microscopically present the appearance of malignant epithelioma

but which occur in succeeding generations of the family, presenting itself at puberty and it does not become malignant.

Dermoid cysts of the skin, occur mostly on the nose, they develop at puberty or later, are usually mistaken for subcutaneous tuberculosis, and may contain several hundred hairs. The very rare form of displacements will not be considered at this time.

THE ANOMALIES OF DEVELOPMENT.

Fibroma Molluscum or Von Recklingshausen's Disease is a defect of development presenting tumors, pigmentation, mental defects and defects of distant organs.

The tumors are of various sizes and shapes, which develop on cutaneous nerves, large nerve trunks and on intracranial nerves producing the clinical picture of brain tumor. These tumors affect the skin, mucous membrane of the mouth, rectum, suprarenal capsule and other organs. They frequently appear after a severe strain on the system, puberty, pregnancy, tuberculosis, malaria, dysentery, etc.

The pigmentations are like freckles, and appear in childhood. Most cases of freckles involving the entire surface of the body of children are due to Von Recklingshausen's disease, the tumors appear later.

Mental defects of Von Recklingshausen's disease Dr. Anthony believes are:

1st. A certain degree of bashfulness, caused by knowledge of a humiliating deformity which crushes the patient and impresses the observer as a mental defect.

2nd. Defective development of the thyroid gland producing cretinism.

3rd. Intracranial nerve tumors producing the clinical picture of brain tumor.

The associated defects; imperfect thyroid is the most common, but hair-lip, exstrophy of the bladder and all kinds of deformity in other organs may be observed.

Ichthyosis:—This is an anomaly of keratinization, which has caused great confusion, owing to the fact that it was formerly confounded with moles.

Moles are defects of development. They are of two kinds, soft moles; which are small pigmented and mamillated areas to be seen somewhere in almost every person, and second the hard mole. There are two kinds of hard mole; the kind which are arranged in lines, *Naevus Linearis*. Why they run in streaks is not known. A book devoted entirely to this subject has recently been published. The other variety of hard mole is the Giant mole, which affects the loin region, producing the swimming drawers naevus, or the trunk, extremities or large areas of cutaneous surface. In a few cases it has been observed to affect the entire body. The Giant Mole was formerly called *Ichthyosis Hystrix* and was supposed to be a severe degree of ichthyosis.

The case which he presents today is a giant mole of the animal pelt variety. The patient is a boy eight years old, who entered the hospital for a herniotomy.

There is present a mole involving the skin of the entire trunk excepting an area from the mamillary line of the left side to the posterior axillary line and from the axillary space to the pubis, the borders of the mole are well defined everywhere. The surface of the mole is pigmented, coffee-au lait color and covered with a growth of long poorly developed hair. In places the surface is verrucous. There are also several hundred pea to cent sized similar moles scattered over the body. The child is mentally bright and presents no other defects of development.

Dr. F. S. Churchill showed a specimen of a heart from an infant eighteen months old showing hypertrophy of the left ventricle and mitral endocarditis. Also, the lungs from the same infant showing consolidated areas of a broncho-pneumonia.

Hypertrophy of the heart had been evident during life, presenting an increase in the area of cardiac dullness both to the left and to the right. Also during life there had been heard a harsh systolic murmur over the precordia generally, but loudest at the second left intercostal space. A well marked thrill had been

felt at the same location. There was clubbing of the fingers and general cyanosis. A diagnosis of congenital heart lesion, probably pulmonary stenosis, had been made during life. The autopsy, however, showed the pulmonary orifice normal.

Dr. Churchill also showed a case of epidemic meningitis under treatment for nearly three months. He came into his service at the Childrens' Memorial Hospital two weeks after onset of illness. Lumbar puncture showed the presence of meningococcus. Flexner serum was given in repeated doses into the spinal canal with disappearance of the acute meningeal symptoms and complete clearing up of the spinal fluid, but the patient had lapsed into a condition of apparent mental imbecility with contractures, some deafness and slight facial paralysis.

He also showed a case of meningitis, proved by lumbar puncture to be due to the staphylococcus, probably secondary to an otitis media of some weeks standing.

In discussion Dr. J. M. Dodson said:

He was not convinced by what Dr. Churchill had said of the advisability of administering the serum at once in every suspected case of epidemic meningitis. It took but a short time, at most a few hours, to make the necessary bacteriologic and cystologic examination to verify the suspicion of a diplococcus meningitis and not until such diagnosis was established or, at least, until every reasonable effort had been made to establish it, were we justified, with our present knowledge of the Flexner serum, in administering it.

In one case of tubercular meningitis which occurred recently in his service in a girl of 7 or 8 years the patient's symptoms were apparently promptly and markedly aggravated by the injection of the serum.

A rash enthusiasm in the hasty administration of the serum in unsuitable cases would do more than anything else to retard its acceptance and use by the profession.

Dr. Coleman G. Buford presented the following:

First—A Bradford frame which the doctor stated has been adopted from Orthopedists by the general surgeon and which he did not believe to be generally used in hospitals. In the abdominal surgery of children it has several distinct advantages:

a. It enables one to retain the child on bed and in the dorsal position when desired. This is accomplished by binding the child to this narrow frame.

b. When the child is thus bound to the frame any degree of elevation may be obtained by elevating the frame instead of the bed. This is particularly advantageous when abdominal drainage has been established as for suppurative peritonitis and an inclined position is desired, and has its advantages over the Fowler position in so much that children are less likely than adults to remain in a constant upright position.

c. The child can be moved from the bed and to the dressing room, as on a stretcher with the greatest ease and a minimum of handling.

Second—A case of a child about one and one-half years of age was presented who was operated on for a tumor of the thyroid gland. The indication for operation was the history of rapid growth of the tumor which had covered a period of only two months. On removal of the tumor through an incision two inches long made parallel to the anterior border of the sterno-mastoid, it proved to be a cyst which was about one and one-half inches in diameter. It had grown in the left upper lobe of the thyroid and was enucleated with very little hemorrhage. The doctor stated that the surgery of the thyroid gland in adults is a subject which particularly interests surgeons at this time and that operative possibilities were understood quite clearly.

According to his experience growths of any kind in the thyroid of young children are very rare, and he supposed that tumors of the thyroid might be dealt with just as freely in children as in adults, but as yet practical experience has not demonstrated this. This patient was operated under anesthesia and from the following day onward played about the bed and ap-

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peared about as well as before the operation. The case was presented as a contribution to the surgical possibilities along the line of thyroid surgery in children.

Third—A case of *hare lip* with an anterior cleft of the palate extending into the left anterior nares, which had been operated on, was next shown with pictures of a dressing used in the case. The object of the dressing being to remove tension from the line of sutures, to secure correct approximation without puckering the mouth, to prevent tension on the line of sutures even during laughing and crying and to do away with tension sutures which aside from infection have been the greatest curse to children operated for hare-lips. The dressing consists of a triangular adhesive plaster applied to each side of the face, one side of it passes vertically downward close to the ear and well under the chin, the anterior angle is placed so that it lies on a level with the middle of the upper lip. This angle is turned backward so as to allow the agglutinating surfaces to come together, the anterior free edge now appearing as a hem which does not quite reach to the corners of the mouth. One or two sutures of heavy silk pass across the lip from one adhesive to the other. A roll of gauze is now placed under the free hemmed edge of adhesive of sufficient size to act as a bridge and to lift the tightened threads away from the lip thus preventing pressure necrosis. No protective whatever was used on this case. The wound was left exposed to the air. There was primary union. Horse hair sutures were used.

This is a modification of a dressing used on large children and adults by Dr. Buford. The dressing differs only in placing rolls of gauze beside the nose so as to prevent the tension sutures from pressing on the bridge of the nose. These are prevented from slipping downward by passing them through a ring or loop fixed to a circular brow-band of adhesive. Where the adhesive lays over the hair on side and back of head it is lined by a thin muslin bandage or sheet wadding.

PEDIATRICS

Vol. XXI

JULY, 1909

No. 7

ORIGINAL ARTICLES

CONGENITAL DISEASES OF THE HEART.*

By THEODORE J. ELTERICH, M. D.,

Professor of Pediatrics, University of Pittsburg.

Gentlemen:

I take pleasure in showing you several cases of congenital heart lesions presenting some rather unusual and interesting features.

The first patient is a baby girl, eighteen months old, suffering from *pulmonary stenosis* and *hemiplegia*. The history is as follows:

FAMILY HISTORY.

Both parents are healthy with no record of rheumatism, syphilis or alcoholism and are no blood relations. There are two more children in the family, one seven and the other eight years of age, both are in excellent health. The mother was well during her pregnancy with this child and nothing unusual was noticed at the time of its birth.

*Clinical Lecture delivered before the Pittsburg Academy of Medicine at the Allegheny General Hospital, May 4th, 1909.

PERSONAL HISTORY.

The infant was fed at the breast until ten months old and with the exception of constipation did not suffer from any gastro-intestinal disturbances. Although she never suffered from any particular disease the mother states that the baby never seemed to be entirely well. She was always fretful and did not thrive well. When about one year old, the patient contracted a severe cough which was followed by a paralysis of the left arm and leg coming on very suddenly. Immediately, preceding this paralysis the patient was exceedingly irritable, had attacks of dyspnoea during which she was very cyanotic. At this time she had no convulsions but since her admission to the hospital she had two eclamptic seizures and two attacks of bronchopneumonia. She is now recovering from the last attack. In addition she is also suffering from acute otitis media.

PHYSICAL EXAMINATION.

The patient is pale and below the average in weight and development. She weighs 12 lbs., 4 oz.; height 32 inches; chest 17 inches; head 17 inches. The fontanel is not quite closed and she has ten teeth. The face is pallid and the lips are blue. When crying or coughing, she becomes very cyanotic. Her pulse is weak and rapid and the temperature is subnormal. The eyes are normal. There is a slight paralysis of the facial muscles on the left side and she has partial loss of motion but not sensation of the left arm and leg. The muscles are neither flaccid nor rigid and react to electrical current. When she first entered the hospital the hemiplegia was complete. The fingers and toes are not clubbed.

Over both lungs some loud and coarse mucous rales may be heard. The apex beat is in the fifth intercostal space to the right and below the left nipple. The area of absolute cardiac dulness extends beyond the left border of the sternum to the median line. A loud systolic murmur is heard over the prae-cordial region with maximum intensity between the second and third costal cartilages to the left of the sternum and is not

conducted into the carotids. The second pulmonic sound is entirely lost.

The liver and spleen are not enlarged apparently. Examination of urine is negative. Blood,—White Blood corpuscles, 5,600; Red Blood corpuscles, 6,850,000; Haemoglobin, 55%.

The diagnosis of pulmonary stenosis is based on the presence of the systolic murmur heard with maximum intensity between the second and third costal cartilages to the left of the sternum, hypertrophy of the right ventricle and the cyanosis. The hemiplegia is probably due to cerebral hemorrhage. Certainly, the possibility of cerebral embolism, thrombosis, and anterior poliomyelitis must be taken into consideration. Embolism and thrombosis are exceedingly rare in a subject of this age, and the absence of fever, vomiting at the onset, points against anterior poliomyelitis, while on the other hand, the great tendency to hemorrhages in these patients, together with the normal electrical reaction of the muscles seem to justify the diagnosis of cerebral hemorrhage. Although I have seen it in another case, recently, I believe that hemiplegia is rather unusual in these cases. This other patient had a pulmonary stenosis, probably associated with a serious defect of the inter-ventricular septum. She was very cyanotic, had a loud systolic murmur, and the absolute cardiac dulness extended to the right border of the sternum. In addition she was also highly rachitic. Shortly before her death she developed a paralysis of the left leg, followed a month later by paralysis of the left arm. The paralysis came on suddenly without any febrile or gastric disturbances. The loss of motion of both limbs was partially restored after a few months. Her father who is a physician gives the following account of her death:

"Her final illness was of short duration. This sickness indicated some central nervous lesion, pressure, slight convulsions, more marked in the paralyzed side—becoming unconscious she died at the end of twenty-four hours."

It is to be regretted that no autopsy was made in this case.

The next case which I present to you is in marked contrast to the preceding one. The patient presents a most striking picture.

PULMONARY ATRESIA. DEFECT OF CARDIAC SEPTA. PERSISTENCE OF THE DUCTUS ARTERIOSUS.

Male, age $5\frac{1}{2}$ years.

HISTORY.

The family history is entirely negative. He is the third of a family of five children ranging in ages from two to twelve years. His early life is quite uneventful and he was apparently well until the age of two and one-half years. About this time he contracted some acute respiratory affection accompanied by severe attacks of coughing, dyspnoea and cyanosis. It seems he has never recovered from this condition for he is deeply cyanosed and frequently suffers from attacks of dyspnoea. He is also very fretful, timid and bears cold very badly. As you look at him you are immediately struck by his appearance. He is of a deep mulberry hue, the cyanosis involving the skin and mucous membrane of the entire body. His conjunctivae are injected and the mucous membrane of the mouth is of a dark purple color. The fingers and toes are markedly clubbed. The temperature is subnormal and the radial pulse weak and rapid. The lungs are congested, the liver and spleen apparently are not enlarged. The urine is normal. Blood examination, R. B. C. 11,750,000; W. B. C. 8,000; Hb. 155%. The apex beat of the heart is found in the normal position and the area of absolute cardiac dulness extends just to the left border of the sternum. Apparently, there is no hypertrophy of the right heart. On auscultation *no murmur can be heard, but a marked accentuation of the second pulmonic sound.*

Before we arrive at a definite conclusion regarding the exact nature of the lesion in this particular case, let us briefly consider the various anomalies found in congenital heart disease and the physical signs by which they may be recognized.

It must be borne in mind that these anomalies do not as a rule occur singly but are usually associated with other defects of the heart. Many of these conditions are incompatible with life, some can never be diagnosed during life and all are more or less of academical rather than practical interest. The principal anomalies of interest to the clinician are, patency of the foramen ovale, defect of the ventricular septum, stenosis and atresia of the pulmonary artery, stenosis and insufficiency of the tricuspid valve, persistence of the ductus arteriosus and transposition of the great vessels.

PATENCY OF THE FORAMEN OVALE AND DEFECT OF THE INTERVENTRICULAR SEPTUM.

The foramen ovale normally closes during the first ten days, but occasionally it remains open during the first six months of life without any physical signs whatever. It is only when the blood pressure in the right auricle is increased, such as would result from a pulmonary stenosis, that the foramen ovale remains patent. This anomaly is therefore always associated with other lesions, likewise the defect of the interventricular septum. For this reason there is no definite symptom complex in either one of these two conditions.

STENOSIS AND ATRESIA OF THE PULMONARY ARTERY.

In ninety percent of cases of congenital heart disease the cause will be found to be *stenosis of the pulmonary artery* with more or less imperfections of the septum ventriculorum.

- a. Cyanosis.
- b. Increased cardiac dulness.
- c. Loud systolic murmur heard most distinctly between the second and third cartilage at the left border of the sternum.
- d. Not transmitted to the veins of the neck.
- e. Absent or weak second pulmonic sound.

Whenever there is an *accentuation* of the second pulmonic sound, there is usually also a persistent ductus arteriosus. (Baginsky.)

STENOSIS AND INSUFFICIENCY OF THE TRICUSPID VALVE.

- a. Dilatation of the right auricle.
- b. Hypertrophy of the right ventricle.
- c. Long continued systolic and diastolic murmurs.
- d. Palpable thrill.
- e. Cyanosis marked.
- f. Heart's action very much increased.
- g. Hemorrhages.

PERSISTENCE OF THE DUCTUS ARTERIOSUS.

- a. Cyanosis either absent or intermittent.
- b. Loud systolic murmur heard with maximum intensity over pulmonary artery, not conducted downward but transmitted to the left of the sternum into the veins of the neck.
- c. Accentuation of the second pulmonic sound.

TRANSPOSITION OF THE GREAT VESSELS.

- a. Cyanosis marked.
- b. Absence of murmur.
- c. No increase in cardiac area.

Unfortunately, for the purpose of accurate diagnosis, our patient's case does not fit any one particular group of these lesions. Radiographs of both this one and also of the other case have been made but the plates do not show us anything from a diagnostic point of view. From the physical signs, therefore, we are not dealing with a single anomaly but with a combination of lesions. It seems to me that in view of the fact that in over ninety percent of cases of congenital heart disease we find the lesion at the orifice of the pulmonary artery, the absence of a murmur and accentuation of the second pulmonic sound that the diagnosis of pulmonary atresia, with defect of the cardiac septa and persistence of the ductus arteriosus, is plausible. I frankly confess that this diagnosis is more or less conjectural and is wide open to criticism. It necessarily must be so, but in support of this opinion, I would cite the case mentioned by Baginsky in his work in *Diseases of Children*. The case which

was published by Leo, was one of complete atresia of the pulmonary artery with a defect of the right ventricle and a communication between the right and left auricles and indirectly with the left ventricle. At the same time the ductus arteriosus was patent. There were no murmurs, the heart sounds were perfectly distinct, the cardiac dulness was not increased and only the cyanosis and dyspnoea permitted one to suspect the existence of a cardiac lesion.

In another case recently reported by Alfred Hand, Jr., of Philadelphia, there was complete absence of the pulmonary artery, with a great deficiency of the interventricular septum. The symptoms were those of angina pectoris and no murmurs.

Congenital diseases of the heart are either due to an arrested development of this organ, or they are the result of fetal endo-carditis, or from a combination of both. According to the opinion of Rokitansky, Rauchfuss, and others, an arrested development is of far greater importance in the production of these anomalies than endo-carditic processes.

The arrest of development may take place in early fetal life and the heart only consist of two cavities, a ventricle and an auricle with a single vessel of the pulmonary and systemic circulation. In some cases there are two auricles and one ventricle. When the development of the heart has been interfered with at a later period, then the septa between the auricles and ventricles are imperfect and the aorta and pulmonary artery only partially developed. Then again there may be a transposition of the great vessels connected with the heart.

In the second group the important lesions are connected with fetal endo-carditis and anomalies of the valves and cardiac septa result. Attacks of acute articular rheumatism in the mother during pregnancy are chiefly responsible for the occurrence of fetal endo-carditis. The diagnosis of this condition has been made even in uterine life by Peters and others.

In the later periods of fetal life it is sometimes difficult to decide whether the imperfections in structure are due to disease or malformation and for this reason these two groups overlap one another.

SYMPTOMS.

The symptoms of congenital heart disease are usually very characteristic. These infants, are, as a rule, quiet and listless, usually retarded physically and often mentally. The nature of the disease may be detected at once or it may not show itself for several months or years as in these cases.

Cyanosis is the symptom which attracts the most attention and this is intensified whenever the infant cries. Cyanosis however, is not always present and in some cases is so slight as to escape notice. It is not unusual to discover a congenital cardiac lesion when making a routine examination of a child called for perhaps some other reason. This cyanosis involves both the skin and mucous membrane and its occurrence is not satisfactorily explained. Some attribute it to venous congestion, others to deficient aeration of the blood. Recently a great deal of attention has been directed to the increase in the number of red blood corpuscles which have been found in these conditions. Baumholtzer reports a case in which there were 9,447,000 red corpuscles, a specific gravity of 1071 and haemoglobin 160 percent. Holt also reports a case with 9,400,000 and haemoglobin 140 percent.

In the first patient we had 6,850,000 reds, 5,600 whites and Hb. 55% and in the second patient we found 11,750,000 reds (two millions more than in any case reported), 8,000 whites and 155% Hb.

This polycythemia is therefore, generally proportionate to the cyanosis and seems to be compensatory.

In addition to the cyanosis, we have attacks of dyspnoea amounting at times to suffocation, convulsions, hemiplegia, haemoptysis, epistaxis, edema of the face or lower extremities and dropsy of the serous cavities.

As the disease progresses the fingers and toes become club-shaped, the nails blue and the skin is cool, in fact these patients usually have a subnormal temperature.

DIAGNOSIS.

We have already considered the differential diagnosis between the various anomalies, and the differentiation of congenital from acquired heart disease can be dismissed with a few words. The history of the case and the fact that congenital affections are usually found in the right heart, acquired in the left, usually make the diagnosis easy.

PROGNOSIS.

The outlook in congenital diseases of the heart is not good; the patient may live for one or more years, but the diseased condition or intercurrent diseases are apt to cause death before childhood has passed.

An important point is the social environment of the patient. A child who can be given all the advantages of a warm climate stands a better chance than the child who is compelled to gain its own livelihood.

Pulmonary disease is especially liable to bring about a fatal termination. Since Rotikansky's teaching that patients with heart disease are immune to tuberculosis many works on the occurrence of tuberculosis with congenital and acquired heart disease have appeared. Though they do not all agree with the teaching of Rotikansky, the slight predisposition of children with heart disease to tuberculosis is certainly established with the exception of one anomaly, congenital pulmonary stenosis. Lebert lays great stress on the fact that at least one-third of those suffering from congenital pulmonary stenosis become tuberculous.

TREATMENT.

There is no specific treatment for any of these conditions and all that one can do is to treat the symptoms. The patients must be kept warm and carefully clothed. If possible they should always live in a warm and equable climate. Cod-liver oil, malt and iron are useful preparations. Digitalis, camphor, strychnine, are given when indications for their use are present; in short, the same general rules for the treatment of acquired heart disease are equally applicable to these conditions.

FOREIGN BODIES IN THE EAR, INCLUDING IMPACTED CERUMEN.

BY WENDELL C. PHILLIPS, M. D.

Foreign Bodies in the Ear: On account of the exposed location of the ear and its open meatus, a variety of foreign bodies find lodgment in the auditory canal, and, occasionally, penetrate the deeper structures.

Etiology: (a) In children: There seems to be a natural tendency among young children to introduce small objects, either into the mouth, nose or ear. These accidents are usually self-inflicted, but, occasionally, they practice upon each other. The more common substances thus found in the meatus are pebbles, beads, bits of wood, glass objects, buttons, gravel, pasty substances, peas, beans, and other seeds.

They are likewise subject to the accidental impaction of gun wads, explosive materials, bullets, etc., and to the entry of animate objects, bedbugs, roaches, houseflies, ticks, maggots, etc.

(b) In adults: In adults the causes are:

- (1) The habit (usually pernicious) of wearing cotton in the ears, pledgets of which are carelessly forgotten, or pushed deeper into the canal by additional ones.
- (2) Efforts to remove cerumen, scales or pus, by means of hairpins, toothpicks, matches and twigs, whereby portions are lost in the canal.
- (3) Animate objects, bedbugs, roaches, moths, flies, ticks, worms and maggots.
- (4) Explosives, gun wads, bullets, portions of rockets, cloth and fibre.
- (5) Foreign bodies incident to occupations, seeds, chips, scales of iron or steel, coal, etc.
- (6) Otoliths.

Symptoms: Unless producing distressing symptoms, a foreign body may remain undisturbed for an indeterminate period, during which it becomes encased in an admixture of cerumen and epithelial scales. Here the symptoms are similar to those hereinafter described under impacted cerumen. Those which enter under force and lacerate the tissues, invariably cause sufficient hemorrhage, pain and discomfort to cause the patient to seek relief.

Explosions and knife or stiletto tips are prone to wound the deeper tissues, with very serious results.

Young children either inform their attendants, or the accident becomes known through inflammatory reaction or hemorrhage. Insects, when alive, produce agonizing, nerve-racking sensations by their crawling or clawing efforts to move about the canal.

The larger seeds like beans and peas become troublesome as a result of absorption of moisture, which causes them to swell and occlude the canal. Pain is always more severe when these objects lie against or lacerate the drum membrane.

The results are more harmful in ears which are the seat of purulent discharge, since by retarding the flow of pus, or by contamination with animate objects serious complications may arise.

Ballinger (Diseases of the Nose, Throat and Ear, p. 601) calls attention to the ravages of the Texas screw-worm fly, which possesses a sawing movement which enables it to penetrate bone, and recalls Mackenzie's reports of cases where they penetrated the cranial cavity, causing death by meningitis.

Diagnosis: The diagnosis is simple and easy in recent cases where no laceration, swelling or hemorrhage has taken place, inasmuch as under strong reflected light the body may be both seen and touched with a probe. This is the only reliable and proper method to follow. Unfortunately, these patients are seldom seen by the otologist at this stage, consulting him only after the walls of the canal have been lacerated, or inflamed as a result of unskilled efforts to extract the offending mass. Having already suffered considerable pain and discomfort, the patient,

if a child or a hypersensitive adult, approaches in extreme trepidation; hence, the examination should be deferred for a few minutes, and his confidence inspired by reassuring statements. Rather than examine an unruly patient under force, with probable damage to the soft tissues, it is wiser to administer a general anesthetic, which permits both thorough examination and a painless and safe removal.

Treatment of Foreign Bodies in the Ear: (a) Insects: First determine positively by visual examination whether the insect still remains in the canal. Nervous patients are prone to complain of the crawling sensation long after the insect has escaped, and are sometimes on the "border line" of insanity. The writer has the record of a woman who stoutly and persistently maintained that she had a bedbug in her ear, and would not be convinced to the contrary until, in desperation, a bedbug was procured and inserted into the canal without her knowledge. It was then withdrawn and exhibited to her with convincing effect.

If alive, the insect should be drowned or otherwise killed before attempting its removal, on account of its power to cling to the surface. Immersion in oil usually suffices, but in case it fails a few drops of chloroform diluted one-half will complete their destruction, after which they are easily removed either with the syringe or forceps—preferably the former.

Inanimate Bodies in the External Canal: The body should be removed by the safest possible method which may be suited to the individual case. Of these the syringe, employed in exactly the same manner as for impacted cerumen is the safest and most effective. Zaufel successfully removed the object with the syringe in 92 out of 109 cases, about 90%.

The invariable rule should be to attempt removal with the syringe before resorting to any other method. In a large percentage of cases the syringe alone will successfully clear the canal of the obstruction. As already stated, a careful preliminary examination through a speculum, with a bright illumination, should be made, at which time all the lacerations and bruises, and hemorrhages, whether incident to the inward

passage of the body or as a result of clumsy unskilled attempts to remove the object, may be seen.

If the tissues about the meatus are greatly swollen and painful and there are no indications of deep-seated injury, it is wiser to delay removal for a day or two until these symptoms subside. Rest, hourly warm douches, and depletion by wet cupping are helpful adjuvants. It now becomes possible to determine the form and nature of the object, its exact location, and whether it is firmly impacted in the lumen of the canal. If reasonable persistence in syringing fails to remove the object, the plan of procedure should be as follows: The object may be located in a manner which permits the operator to grasp it firmly with the forceps or hook into some eyelet or angle without danger of forcing it deeper into the canal. In this class are found wads of cotton, paper or cloth, the eyelets or thread holes of buttons, the edges of metals, sticks, buttons and similar substances. After securing a firm hold, traction should be made directly toward the mental orifice until the object is extracted. During this time the head should be steadied by an assistant. The removal of objects with smooth oval surfaces like beans, peas, beads, etc. is obviously a more difficult procedure. Here the employment of forceps is contraindicated unless in skilled hands, inasmuch as in applying the jaws there is danger of forcing the object into the deeper portions of the canal, always an unfortunate occurrence on account of the added difficulties in removal incident to a location beyond the narrowed juncture of the osseous and cartilaginous portions of the canal. The agglutination method has been recommended in this type, and consists in gluing the end of a small piece of tape, or a small camel's hair brush to the surface of the object, and after it becomes firmly fixed, to make sufficient traction to pull out the foreign body.

Another procedure is to gently slide a small hook between the canal wall and the object, and by a slight cork-screw motion imbed the tenaculum into the mass and thus withdraw it. Quires' foreign body extractor is also available here. It sometimes happens that the first insertion of the hook merely pries

up one side of the object, in which event it should be re-inserted upon the opposite side and the object thus removed.

In removing denser objects, glass, metals, etc., it may be necessary to insert a small curet or spoon, even at the expense of slight laceration, in order to obtain sufficient hold to remove them. In young children and many adults it is quite impossible to remove the more deeply imbedded foreign objects except under a general anesthesia; hence, it is advised, and its employment greatly simplifies the operation, but should in no wise lessen the importance of observing all precautions against injuries to the drum membrane and canal wall.

There are rare instances wherein large, dense objects become deeply imbedded in the bony or cartilaginous walls, when it is impossible to extract the object except by posterior incision and detachment of the canal from the bone in the manner followed in the removal of exostoses of the canal, or the radical operation.

Foreign Bodies in the Middle Ear, Eustachian Tube and Temporal Bone: These are usually bullets or other projectiles, or the broken tips of swords, knives or stilettos. Unless a projecting portion can be grasped with strong forceps and the entire object removed by traction, a surgical operation should be performed without delay, and under all the precautions required by modern surgery. The preliminary steps are precisely those followed in removing an exostosis from the bony canal by the post-auricular route. By this means it becomes comparatively easy to chisel or pry out the mass. It may, however, become necessary to chisel away a portion of the bone from the canal wall at the transition of the auditory canal into the tympanic cavity, or even to open the antrum or labyrinth in case the foreign body has been lodged in these regions. The requirements subsequent to such operative procedure would be closure of the wound and movement of the canal in position by suitable packing.

Small bodies in the tympanic orifice of the Eustachian tube may sometimes be withdrawn by forceps through an open drum membrane, and if protruding from the faucial opening, removed

with a properly curved forceps, aided by a rhinoscopic mirror. Operators have succeeded in dislodging Eustachian obstructions by Politzeration, first removing a window from the drum membrane.

Impacted Cerumen: The normal secretion of the ceruminous glands, which are located chiefly in the cartilaginous portion of the external meatus, is light yellow, semi-fluid in character, and under healthy conditions tends gradually to approach the external orifice, where it becomes removed in the ordinary course of daily washing.

The proximity of the inter-maxillary articulation, the capsular ligament of which stands in close relation to the tragus, is supposed to be an important factor in moving the cerumen towards the outer orifice of the meatus, inasmuch as with each motion of the joint, whether in talking or mastication, there is an impingement upon the canal.

Etiology: Several etiological factors, acting either singly or in combination, enter into the causation of retained ceruminous plugs.

(1) *Anomalies and obstructive lesions of the canal:* Retention of cerumen sometimes occurs in canals which are of extremely small calibre at certain points throughout; in those that are congenitally tortuous, or when the walls are the seat of exostoses or hyperostoses.

(2) *Foreign bodies:* Foreign substances which are allowed to remain in the canal serve as a nucleus to which cerumen adheres. Of these, cotton pledgets, carelessly left in the canal, either from attempts to remove debris or while worn for protection, are the most common. Beads, seeds, and articles of dirt, coarse dust and splinters occasionally serve the same purpose.

(3) *Diseases of the Middle Ear and External Meatus:* Eczema and other cutaneous diseases, circumscribed and diffuse external otitis, and purulent otitis media, both by extensive exfoliations and by modifying the character of the ceruminous exudate, are prolific causative agents. The frequency of its association with chronic catarrhal otitis media suggests a

possible concurrent alteration in the ceruminous glands whereby the quantity of secretion is diminished from lack of fluid elements. Cholestomata which have exfoliated from the middle ear sometimes form a portion of the mass. Hyper-secretion of cerumen, while rare, sometimes occurs, and variations in the amount secreted are wide, even within normal limits.

(4) *Mechanical causes:* Aside from foreign bodies, the agglutination and retention of cerumen is facilitated by wrong methods of cleansing the ears. Irritant solutions, portions of which are allowed to remain in the canal, causing superficial inflammation and exfoliations, overstimulate the ceruminous glands or cause superficial dermatitis and exfoliation. In the ordinary cleaning of the canal by wiping with cotton-tipped probe or twisted corner of a handkerchief or washcloth or ear-spoon, masses of cerumen are easily pushed deeper in, where they remain and increase in size.

Pathology: Cerumen masses are usually of complex formation, having in addition to the ceruminous exudate variable admixtures of sebaceous matter, flakes of epidermis, and fragments of hair, spores and central foreign bodies. The color of the plugs varies from light yellow to reddish-black, very old plugs often having a glistening appearance from the presence of cholesterin crystals. Prolonged contact of large masses of impacted cerumen probably excites more or less extensive desquamative inflammation of the walls, osteitis and perforation of the membrana tympani.

Symptomatology: So long as the ceruminous plugs do not attain sufficient size to completely obstruct the calibre of the canal, all subjective symptoms are absent. An extremely minute channel seems to be sufficient to admit sound waves and maintain the hearing function practically unimpaired. A change of position of the mass, due to violent jarring of the body, or to the movements of mastication, whereby the canal becomes totally occluded, will produce deafness. The same result often ensues after bathing, and is explainable as follows: The bather who has a cerumen plug which nearly fills the calibre of the canal, gets water into the ear, and sufficient moisture is absorbed to

cause the mass to swell and close the entire lumen of the canal. Complete occlusion is immediately followed by a sensation of fullness in the ear, deafness, tinnitus, and often vertigo. Autophony is a common symptom. Upon inspection during the earlier stages the accumulated cerumen may be seen covering certain portions of the meatal walls, either as sticky masses, or in the form of flakes, crusts or wads. As these increase in size by accretions, they tend to extend in either direction until the entire canal is occluded with possible pressure upon the drum membranes. The tinnitus is variable in its intensity, but is at times so loud and troublesome as to become the sole cause for seeking relief. When perforations exist, all symptoms are aggravated, and trigeminal neuralgia, facial paralysis, and blepharospasm have occurred. Pain rarely ensues, although at times, owing to pressure, neuralgic pains may be felt, not necessarily localized, but radiating in various directions. Among the reflex symptoms cough is the most prominent. It may become so severe as to induce congestion in the upper respiratory tract.

Complete blocking of the canal necessarily perverts the function of audition, and in nervous subjects considerable mental disturbance may accompany the condition. Vertigo, nausea, and epileptiform seizures have been known to result from impaction of cerumen in the auditory canal. Impaction in canals which have long been the seat of a purulent process may lead to serious consequences on account of the obstruction to the outflow of discharge.

Diagnosis: Careful inspection of the auditory canal is the only method by which a positive diagnosis may be made. It must be differentiated from cholesteatomata, blood clots, foreign bodies, inspissated pus, and a variety of admixtures of epithelium, spores and foreign bodies.

Prognosis: The outcome is less easily determined, as hyper-secretion of cerumen is frequently associated with other forms of disease. The mere cerumen mass in an otherwise healthy ear is never a grave condition. It is unwise to predict that a return of hearing will follow the removal of the cerumen mass, inasmuch as deafness from other causes may have pre-

existed. Whenever the loss of hearing is sudden and entirely due to occlusion, the prognosis as to hearing is invariably good. Recurrence is the rule, and patients should be so informed, and advised to return at intervals of about six months in order to prevent a repetition of the impaction. It is wise to record the aerial conduction sound before removing cerumen, in order to circumvent any contention as to loss of hearing which the patient may subsequently make. In one instance, in the writer's experience, a clinic patient threatened legal proceedings, claiming that the removal of masses of cerumen had resulted in great diminution of hearing. The record of the hearing distance previously made easily proved the patient's error.

Localized masses smearing the posterior-superior wall of the canal are usually indicative of a purulent process within the tympanic cavity, and their removal may be followed by renewal of the discharge.

Treatment: Obviously the treatment should be directed to the removal of the mass. When the masses are small and not densely impacted, a few syringefuls of warm water will be sufficient to effect their removal. Hard plugs, densely impacted, are difficult to remove at the first sitting, and inasmuch as a short delay is not a detriment to the patient, it is wise to desist for a day, in the meantime directing the patient to instill at short intervals either warm saline solution, common salt $\mathfrak{ss}$ to sterile water i pint , or a solution of sodium bicarbonate $\mathfrak{ss}$ to $\mathfrak{ssiv}$ of sterile water. Instillations of peroxid of hydrogen are more effective, and the writer has never observed any harmful results from its use. The stream from the syringe should be directed to the borders of the cerumen mass as the most likely place for the solution to get behind and force it outwards. Considerable force may be expended upon the current without damage to the parts. It is sometimes impossible by means of the syringe to throw the solution behind the hardened mass, and it becomes necessary to supplement its action by means of a small curet or probe, and make a groove between the cerumen and the canal wall through which the water may be forced, always pointing the syringe toward the groove. In rare

instances cerumen resists all efforts at removal with water; hence, it becomes necessary to extract it piece by piece, with forceps and curet. Following the removal of cerumen the auditory canal should be carefully dried and inspected, meanwhile noting any injury to the canal walls or drum-head. The surfaces may then be thoroughly smeared with liquid vaseline containing menthol in the proportion of 10 grains to the ounce, and a small tampon of cotton inserted for a day. The patient should be directed to return in a day or two, at which time the canal should be thoroughly touched with alcohol in order to destroy any vegetable fungi, and such further applications as the condition of the parts may require. Unless absolutely necessary, the introduction of forceps, spoons and curets should be avoided in the removal of cerumen masses. Finally, before dismissing the patient, the hearing distance should again be tested for purposes of comparison.

SOME OBSERVATIONS ON HYSTERIA IN CHILDREN.*

By E. H. BARTLEY, M. D.

Hysteria may be defined as a functional neurosis manifesting itself by a morbid reaction to emotional stimuli. It may be either of emotional or intellectual origin, but usually the former. However, there is in older persons usually a concept or object to be attained, although sometimes hysterical phenomena seem to be the result of psychic disturbances dependent upon diseased states. True hysteria is rare in children before the third or fourth year. Cases do rarely occur before this time but they are difficult to analyse or classify.

The diagnosis of hysteria is largely dependent upon the definition we adopt. It is especially difficult at times to differentiate it in young children from hypochondriasis and neurasthenia, as they are closely allied conditions.

Hypochondriasis is a condition of mind usually brought about by some real or imaginary ill health, which idea is so persistent that it is ever present and foremost in the thoughts. Hysteria, on the other hand, is not incompatible with perfect health, appears suddenly in response to some psychic or emotional stimulus, disappears for a time, at least, and is not pushed to the fore so constantly. It is an explosion of the higher centers, usually associated with sensory or motor paralysis and inability to control emotional display.

Neurasthenia is characterized by excitability and easy exhaustibility of the whole cerebro-spinal nervous system. It is a hyper-sensitiveness of the nervous system with a proneness to exhaustion of nervous, mental and physical energy. Hysterical

*Read before the Medical Society County of Kings, Section on Pediatrics, May 25, 1909.

outbreaks may occur in subjects of melancholia or neurasthenia. Neurasthenics have an abnormal capacity for feeling emotions and sensations of all kinds. Their emotions are easily excited by stimuli which would be entirely inadequate in normal individuals to produce such a result. Hence they burst into tears either from a reprimand or a few words of sympathy. The symptoms of neurasthenia are of a depressing nature, while those of hysteria are excited or explosive, and are often preceded by some psychic excitement such as grief, fright, disappointment or crossed purpose.

In children, hysterical outbreaks are sometimes caused by gastro-intestinal disturbances. Neurasthenia may show itself in early infancy, but hysteria is not seen before the child is able to form a distinct concept or a definite purpose of action. Those forms of hysteria which are known as catalepsy, trance and ecstasy are rather more frequent at an early age than those dependent upon a more complicated concept. Mills¹ cites a case of this kind in a child of two years of age. He claims that this is the youngest patient of this kind on record. Jacobi has reported one in a child three years of age. The author has met with a case of hysterical catalepsy in a child of two and a half years of age. Case I. Baby N., female, aged 2½ years, of Swedish parentage, and of apparently good health, was taken in the evening to a candy store by an older sister and given some taffy. On returning home the father took the candy away from the child. This produced a "fit of temper" and after crying viciously for a few minutes the child threw herself on a lounge and abruptly ceased crying and became rigid. I was summoned because of her strange behavior. I found the child in a cataleptic state, in which she remained for about six hours. It was possible to move her arms or legs by overcoming some resistance, and they would remain where they were left, until again moved. She could be set upright when she would remain in that position. She could be stood upon the floor on her feet, but she would not balance herself. Her eyes would remain shut or open when they

¹ Am. System of Practical Medicine.

were put in this state. A considerable number of experiments of this kind were tried. Her temperature was normal and her heart was normal. Her respirations were of a sighing character as though she were sighing in her sleep. The next morning her condition was normal. This case is unusual because of the age of the child.

Case II. Baby W., female, aged 2 years. American parentage; only child of the family; nursed until 15 months old. Has always enjoyed good health except an attack of measles when 18 months old. The mother stated that she was well except that she was a restless, poor sleeper, often having difficulty in getting to sleep. For a few days before the present occurrence she had "lost her appetite" and was irritable. She was brought to my office because of fits of uncontrollable crying, which had occurred several times a day for three days, and without apparent cause. The first of these attacks occurred at night and was probably a *favor nocturnum*. These attacks are sometimes to be regarded as hysterical. Ollivier speaks of them as a larval form of hysteria. This first attack lasted a half hour. The following day she had two such attacks lasting about 30 to 45 minutes. During the following night she had an attack and the next day she had several such attacks. During the succeeding night she had one lasting three hours. Some of the day attacks occurred without any provocation while at play, one of which occurred in my office. This one, however, was preceded by a desire to go home which was denied her, when she cried for a few minutes, and then she threw herself upon the floor, refusing to allow her mother to touch her. She became frenzied, kicked, screamed, pulled her hair and clothes, scratched herself, bit her fingers, etc. This attack, at least, was not a *favor diurnum*, nor was it an ordinary fit of temper. It was more like an explosion of emotion or loss of power of control of an emotional display. This attack lasted about 20 minutes, when I checked it by dashing cold water in her face. She soon quieted down, went to her mother and walked out of the office in a normal condition. She was given five grain doses of sodium bromide every three hours, which failed to control these paroxysms after 24 hours. She was then

given four grains of sodium bromide and three grains of chloral hydrate which stopped them. Not only so, but she has had no return of the spells for about a month, and the mother says her disposition has entirely changed. While the child was very restless at night and a poor sleeper, she now sleeps throughout the night and is much easier to control during the day. After a few days of loss of appetite, similar spells returned a month later, which were controlled in the same way. We have here a child who was normal except that she was a rather nervous child but not a neurasthenic, suddenly exhibiting these spells of uncontrollable rage or emotional frenzy. She never lost consciousness, and under chloral and bromides became normal again. I think this is a case of hysteria rather than one of neurasthenia. The first hysterical outbreak in this case, seems to have originated in the fright of a night-terror. The subsequent attacks extending ever several days, seemed to grow more severe until checked by sedatives. It seems that the nervous system once unbalanced by the first fright, was unable to regain its balance, and would break out anew without other cause than the original fright or the disturbance caused by it. It is claimed by most authors that hysterical subjects are born so and do not develop this condition. It is probable that it is the tendency to develop palpable symptoms, and not the symptoms themselves, which is congenital. In neither of the above reported cases could either parent be accused of being neurasthenic or hysterical so far as I could elicit from the history.

In most cases of true hysteria one recognizes the so-called stigmata of hysteria, i. e. anesthesia of the conjunctiva, and cutaneous surfaces, constriction of the visual fields, loss of plantar, pharyngeal reflexes, and various other sensory and motor paralyses. I could not find either of these in the last case, but in the first there was total abolition of the reflexes.

Case III. This case illustrates the cases of transient paralysis. W. P., a boy aged three years on awakening one morning was unable to walk or even stand alone. His right leg was completely paralysed, of normal temperature and flaccid. There was no elevation of temperature, no vomiting and no other

disturbance to be found. There could be elicited no history of injury. He was apparently well the night before and he had slept well during the night. The boy showed some symptoms of a neurotic tendency, was irritable and difficult to manage, which was shown in after years by a marked waywardness and criminal tendency. He was backward at school and intellectually not quite up to the normal. He was troubled by nocturnal enuresis and was rachitic. The motor paralysis of the leg was complete, when the boy was sitting up, but he could move the leg when lying in bed. Sensation was preserved and the tendon reflexes normal so far as I could determine. The electrical reactions were not studied. The paralysis recovered completely and rapidly in a few days without other treatment than a laxative and breaking up some prepuccial adhesions. From the abrupt onset of the paralysis, involving the whole leg, the rapid and complete recovery, total absence of muscular atrophy, and the fact that the boy could move the leg in bed, I conclude that there was no organic lesion present. The absence of pain would exclude neuritis. We occasionally have a paralysis somewhat similar to this in rachitic children, but these are more like a muscular weakness or lack of tonicity, and not likely to be confined to one limb. This boy had a phymosis with slight adherence to the glans. This was detached but there was no circumcision done. There might have been some peripheral irritation here but I think this was doubtful as a cause of the paralysis. From the character of the boy's nervous system I am inclined to regard it as a case of hysterical paralysis, occurring in a neurotic child. It is not unusual to meet with cases of temporary paralysis of a limb in even very young infants after a very slight injury, such as a fall, or a pull in putting on the clothing or simply leading a child by one hand. I have seen a number of such cases lasting two to three days, and recovering abruptly. These are often produced by fear of pain on moving the arm, after it has been hurt, rather than a paralysis. In the above case there was no pain and no injury.

Gillette (in the N. Y. Med. Jr. and Obstetrical Review 1882, p. 66) reports a girl 18 months old, who had a habit of plunging

forward and falling on the floor for amusement. One evening when about to do this her mother caught her by the arm and stopped her. The arm fell helpless at her side. A careful examination could elicit no pain or other evidence of injury. The paralysis lasted 36 hours when the other arm was also helpless. After an examination by the physician a new bright colored ball was secured and given her when she suddenly recovered the use of both hands. I recently met a girl of eight years, who complained of attacks which began as a vertigo after studying her lessons. These would come on at school, but without any other symptoms than palpitation.

They would also come on at home in the evening and for four or five evenings in succession they were accompanied or followed by an outbreak of hysterical crying and laughing lasting for some time. The beginning of the attacks was described alike whether occurring at school or at home. Apparently the restraint of the school discipline prevented the hysterical outbreaks which occurred at home.

The treatment of hysterical children is a matter of the greatest moment. This must be done by careful management rather than by drug treatment. It may be necessary, however, to use drugs temporarily, as shown by the second case mentioned above. The first thing we should discuss is the preventive treatment. The management of the neurotic child is not an easy task, and unfortunately must be given over to parents eminently unfitted for such a task, for they are themselves often neurotics, dissipated or injudicious. The prevention of hysteria and neurasthenia is largely a matter of nursery hygiene, and good example.

An hysterical, epileptic, dissipated or insane mother should not nurse her baby. It is far better to wean and give the baby over to a strong, healthy and above all, a kind judicious nurse. The example of a mother, father, brothers, sisters or playmates may be bad. A drunken or passionate father is sometimes, through fear and bad example, the cause of hysteria or other nervous disorders in children. Idiotic, imbecilic, epileptic, choreic or vicious brothers or sisters offer illustrations of what

I mean by bad example, which do great harm to neurotic children. It is not always possible to remove children from such surroundings, and therefore it is not always possible to prevent the development of hysterical children. When practicable we should use our influence in this direction.

The curative treatment of hysteria in children includes measures intended to maintain good health, and remedies for special phases of the disease such as convulsions, extreme nervous instability, paralysis, contractures, aphonia, etc. Regulated and systematic exercise, calisthenics, well ventilated sleeping rooms, massage, baths, isolation in the graver forms, change of environment, especially removal from home or placing the child in charge of a kind but firm governess will be the measures most likely to give good results. Such children should be taught to do things for themselves and to respect authority. As soon as such children are old enough to have notions of their own they endeavor to carry them out in their own way. This must be met by kind but firm authority—persistent and insistent. A vacillating, unreasonable policy is disastrous.

Restrictions, which are always necessary, must be reasonable and judicious. Decisions which must very often be made, must be made after thought and be those which can be justified by a good and sufficient reason. Continual and unreasonable restrictions irritate and discourage children, and make them rebellious.

The medicinal treatment of hysteria will often be necessary. Tonics will often be necessary but should not take the place of the other measures above mentioned. Any departure from physical health must receive attention. Anemia and digestive disorders are, in my experience, the most frequent. I am firmly convinced that both neurasthenia and hysteria are profoundly influenced by sub-acute and chronic gastro-intestinal disturbances, because of their well known tendency to produce an unstable nervous system. When the nervous system is unstable because of hereditary influences, these disturbances may frequently be the exciting cause of an epileptoid seizure, or

hysterical outbreak, as illustrated by the second case reported. Careful attention should be given to the diet and condition of the digestive organs in all nervous children. Every case must be treated by itself by increased nutrition in some cases, restrained appetite in others; arsenic does well in some, and sedatives in others.

Careful management and educational methods must be used in all, if we are to be successful in producing lasting results.

WHY A CERTIFIED MILK COMMISSION?*

BY DR. W. M. FRENCH.

There certainly is no need of argument before this Society as to the need of the highest possible grade of milk for infant and invalid feeding. Nor is it necessary to take your time to demonstrate that such milk cannot be supplied to the sick city child at the same price as that handled by ignorant and dirty milkmen. Cleanliness is always expensive, surgical cleanliness especially so.

Certified milk can only be produced under the conditions of surgical cleanliness and hence must always be high priced.

The conditions now insisted upon by the Milk Commission of this city are:

1st, Certified milk shall only be produced by tuberculin tested cows.

2nd, These cows shall be kept under the best sanitary conditions known to veterinary science.

3rd, They shall be milked in surgically clean stables by men as clean as the assistants at a surgical clinic.

4th, The milk shall be immediately cooled and bottled and kept until delivered at a temperature never to exceed 40 degrees Fahrenheit.

5th, It shall contain no preservative and shall by chemical analysis contain 4% fat, 6% sugar, 4% proteid and 12% solids.

6th, Its bacterial count at the time of its delivery shall not show more than 10,000 bacteria to the cubic centimeter.

Now it requires infinite watchfulness and much money to obtain these results, but it can be done and is now being done by many dairies, both east and west.

Granted the desirability and the possibility of producing such milk as this, the purchaser rightly requires one thing more

*Read before Chicago Pediatric Society, May 18, 1909.

before paying the high price demanded for certified milk. This additional thing is a reliable guarantee that the certified milk he is buying answers all the requirements that shall go with the certified milk and this is what the Chicago Medical Society proposes to do through its Milk Commission. These men have called to their aid all the help that they can get from chemistry, bacteriology and sanitary science to determine what a certified milk should be.

We have noted what their conclusions were and it may be added that there are no more honors than those demanded by the best milk commissions of this country of which there are now thirty-two in active operation.

Furthermore, they have found five dairymen who are willing and anxious to comply with all of the requirements insisted upon by the Commission, provided it will put its official seal upon the milk prepared under its direction. The dairymen stand ready to meet all of the expenses of the veterinary, chemical and bacterial examinations required by the Commission, and as often as they require.

A proposition more fair than this is hard to imagine, but the efforts of the Commission and the producer will come to naught unless the Society comes to its help, not financially, for the Commission is self-supporting, but by its influence in the community, during the coming summer. Producers will grow weary in well-doing, unless the pediatricians of this city boom the sale of this ideal milk, for such it is.

Copenhagen and Rochester, N. Y., have demonstrated that it is possible to do this successfully for a term of years.

Chicago has not yet been so fortunate, largely as we believe because its physicians have not taken pains to inform themselves on the subject, and there are even now some doctors who have opposed any action on the part of the Medical Society of Chicago, on the ground that it is not its province to sell milk. The Milk Commission does not sell milk, never thought of selling milk and could not be forced into the milk business.

The sole duty of the Commission is to provide honest and efficient inspection of any dairy that desires to produce the very

best milk possible. If the dairy lives up to these stringent demands at its own expense, the Commission then places the official seal upon such milk, stating thereby that such milk has been certified to by the Milk Commission of the Chicago Medical Society. If you buy or recommend this certified milk you may rest assured that so far as integrity and ability can protect you, you have been protected in the quality of this certified milk.

So insist upon your patients looking for the official seal of the Medical Society before buying certified milk, for it must not be forgotten that there are other certified milks, whose only certification is that of the milkmen wishing to sell the same.

These, of course, do not look with favor upon any certification by competent and honest men.

There are also women who have so little sense as to oppose in women's clubs the certification of clean milk on the ground that it will increase the price of milk to the general consumer, especially the horny handed son of toil, who is unwilling to cut down his beer to provide clean milk for his sick baby. Is there a kind of surgical operation that can make them comprehend that the cheap milk sold to the poor is the deadliest poison to the sick babies?

The difference in price between a quart of good, clean milk and that of a quart of an infected kind dispensed by the dirty milkmen is less than the cost of a glass of beer, and yet there are those who wax eloquent over the injustice done to the poor man in forcing him to buy a higher priced milk.

DISCUSSION OF DR. FRENCH'S PAPER.

DR. DENNIS:

Said he lived in the country and had had some experience with milkmen; he had been through cattle barns and had seen that the cost of production of milk is very much in excess of the present price charged in the city, viz.: 8 cents a quart. It is very difficult to produce absolutely pure milk under 14 cents a quart. Men who are in the dairy business claim they

are not making any money. The question comes up whether it is going to be possible for them to produce a pure grade of milk at a lower cost.

Then the question must be viewed, also, from the farmer's standpoint. He has a herd of cows; the inspector comes along and makes an investigation of his herd and finds that 60 or 75% are tuberculous and he is practically ruined from a financial standpoint. He simply brought up these points to show that the farmer is, also, laboring under difficulties in an attempt to produce good milk at a low cost.

He had found intense opposition on the part of farmers to testing their herds and it seemed to him that the Milk Commission ought to see that the farmers were educated in regard to the requirements of the Commission and the kind of milk they were after.

Dr. Vanderslice said "that the Chicago Medical Society Milk Commission had learned much from the experiences of the older commissions throughout the country and was enabled to avoid some of the mistakes inevitable to the older organizations. The specifications of the Chicago Medical Society Milk Commission were in accordance with those of the American Association of Medical Milk Commissions. For the preliminary inspection of the dairies applying for certification the commission had been very fortunate in securing the services of Professors Lane and Yates from whom much valuable information was secured.

In the inspection of the various dairies from time to time the U. S. Dept. of Agriculture score card is used, and a grade of at least ninety is demanded before certification is granted.

The score card is divided into two headings, equipment and methods. The total possible score for equipment is forty and for methods is sixty, thus methods is considered of the greater value.

Every precaution is taken that the dairies are not forewarned of an intending inspection. The milk taken for the chemical and bacteriological examinations is taken at random

from any of the wagons at time of delivery and is immediately sealed and sent to the laboratory.

The requirement of tuberculin testing of all the cattle supplying milk to the cities has stirred up quite a little trouble with some dairymen but these do not include those supplying certified milk as all of these have been anxious to have their herds tested. That the farmer should consider the testing of his cattle and the loss due to discovery of tubercular cattle a great injustice is shortsighted in the extreme as there can be no question as to the economical procedure by the ability to isolate the diseased cattle and so protect the normal and the offspring of the tubercular cattle.

DR. LACKNER:

This move of the Chicago Medical Society is a step in the right direction. It is only in this way it could take up the milk question and handle it successfully. The milk supply in the city of Copenhagen which has the best and purest milk in the world, was started under the same auspices as the movement inaugurated here in Chicago and it should be so engineered that our physicians will help to educate the public as to the purposes of the movement and help to place certified milk upon a proper basis.

He had had occasion in connection with Michael Reese Hospital to visit some farms that supplied milk to that institution. The cattle, so far as he could judge were in good condition, but the barn yards where the cattle were milked were in a fearful condition; there was absolutely no attempt at cleanliness, no supervision of any kind and no care taken to maintain any degree of sanitation and the milk was subject to infection of all kinds. This is the condition of 95% of the farms that supply milk to the city of Chicago.

He thought that pasteurized milk was a failure and quoted an instance where the cattle had acute mastitis and on examination the milk was found to be full of pus—pasteurized pus.

He said it was estimated that in the city of Berlin over 20 tons of manure was distributed through the milk delivered to the

city and in Chicago it would probably reach from 60 to 80 and 100 tons.

This is the condition of affairs that is facing the Chicago Medical Society and the physicians ought to support unanimously the Commission in its efforts to supply pure milk to the city.

Is there any provision made for continuous supervision or will inspection be made occasionally only? These inspections should be continuous to be effective.

DR. CHENEY:

One suggestion of Dr. French ought to be emphasized and that is, we have an ideal Milk Commission and Chicago will very soon be having certified milk of its own to sell, but that won't sell the milk. It will be necessary for each of us to work for the Milk Commission, not only with patients but some missionary work can, also, be done with the practitioners of the city; for, perhaps, half the practitioners in the city do not know what certified milk really is.

DR. GRULEE:

Called the attention of the Society to the fact that pasteurizing milk did not kill all the bacteria; bacteria multiply much more rapidly in pasteurized milk than in raw milk. He thought this point should be emphasized.

DR. DAVIS:

If the milk situation for us as physicians is difficult we must not forget that the farmers in the country have also their problems to solve and they must look to agricultural colleges for the help which they need. Many are now availing themselves of the short free winter courses offered to both the farmer and his wife. Good milk from a farmer's standpoint is not always good milk from a physician's standpoint, especially a pediatrician's. What would constitute good milk for butter and cheese would not be equally good for infant feeding. Good milk for the adult is also quite a different proposition from milk that would be proper for the feeding of babies. The farmer in our

state raises his herds from the standpoint of beef, butter and cheese mostly, and for agricultural reasons. The average Illinois cow is not raised from the baby-milk standpoint and is not the best for that purpose.

She thought the farmer should begin to get at the bottom of the cause for tuberculosis among the cows. If it is so prevalent there must be some cause, and it probably lies in too close housing. Her herdsman always kept the cows in the barn on stormy days because otherwise the cold and damp checked the flow of milk, but animals need plenty of fresh air at all times, and it becomes a question—is it cheaper to have less tuberculosis or less milk?

Cows vary greatly in the amount and kind of milk they yield, and a cow does not pay for her keeping these days unless she gives 15 to 20 quarts of milk daily. The problem is up to the Pediatric Society of finding the kind of cow which will produce the right kind of milk in quality and quantity for the babies and thus creating a demand for such a grade of milk.

DR. ABT:

Replying to a question as to what arrangements have been made for applying the tuberculin test, I take pleasure in informing the Society that the Milk Commission has been so fortunate as to be favored by the Bureau of Animal Industry of the U. S. Department of Agriculture, who will make these tests. The Commission thinks this to be a very fortunate arrangement, because of the great care and scientific accuracy which is exercised by this Department, and, also, it will remove all local coloring, such as would occur if some veterinarian from the neighborhood were to conduct these tests.

Dr. Davis' remark has suggested to me what I have had in mind for a long time, namely, that the milk from such selected herds as Jerseys, Guernseys or Alderneys, was likely to be indigestible on account of the high fat content and I, therefore, think it would be well to recommend to producers that the milk should come from mixed herds, or what is possibly preferable

from a herd which contains a majority of Holsteins. It has been said that this latter named herd makes a milk which contains not only a less percent of fat, but it contains, also, smaller fat globules, thus rendering it more easily digestible.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

STATED MEETING, HELD MAY 13, 1909.

DR. ELI LONG IN THE CHAIR.

Baby With Club Foot Put Up in Plaster: Dr. Henry Frauenthal presented this child for the purpose of bringing out a discussion as to the proper time to treat club foot in children. The consensus of opinion on this subject was that the child should wait until it was about five years of age. This baby was but three months of age and the feet had been put up twice. The child had been under treatment for four weeks. If the child had been allowed to wait until it reached the age of five years a very considerable operation would be required.

Dr. Long said that the child was very young to have its feet put up in plaster and inquired if Dr. Frauenthal knew of any one who had obtained good results from such treatment.

Dr. Frauenthal replied that he knew of ten or fifteen cases that had been treated in this way inside of three months and the children had perfectly good feet. At an early age the deformity was easily corrected. The treatment was in opposition to the opinion of good men but they did not get good results so quickly and easily.

A Case of Congenital Stridor: Dr. Charles Herrman presented this case from Dr. LaFetra's service at the Vanderbilt Clinic. The labor was normal and the child apparently normal until it was two days old when this peculiar crowing sound was heard, which had since become accentuated. The child made no noise when asleep, but when it became excited and took a deep inspiration the sound was very distinct; this was true also at times when it was taking the breast. There were two theories regarding the etiology of this

condition, the one generally accepted being that it was due to a congenital malformation of the larynx; the larynx was a little different from the larynx in the adult, and as the child grew older the epiglottis unfolded and the peculiar stridor appeared. Thomson believed that there was another factor, i. e., an incoordination of the respiratory muscles. He did not think that the malformation was not present but that the incoordination was the prime factor. The sound was not heard in expiration. There was no marked interference with respiration and no other sign of obstruction. The second view was that the condition was due to an enlarged thymus, which caused this stridor by pressure. There was a lack of evidence to uphold this view. Autopsy had been performed in a number of these cases and they always showed this peculiar form of larynx, which seemed to indicate that the form of the larynx was the cause of the trouble. The condition disappeared at the end of a year and a half. Medication had little effect upon the condition which simply persisted for a length of time and then disappeared. Pictures were shown illustrating the condition of the larynx in two cases of congenital stridor, and also the peculiar form of the larynx in the new born infant as compared with the adult larynx.

Dr. Herrman also presented a case of *Persistent Jaundice*. This patient was an infant four months old, also from Dr. LaFétra's service at the Vanderbilt Clinic. The parents were healthy; there was no suspicion of specific disease. There were ten other healthy children. The labor had been normal and the child was jaundiced. The child had three or four large white stools daily and no vomiting. The urine contained bile pigment. The liver extended four centimeters below the border of the ribs in the maxillary line, the spleen two centimeters. The temperature was 99.6. At the end of a month the condition and weight of the patient remained about the same. A persistent icterus neonatorum could easily be ruled out. The absence of fever was against sepsis as were also the comparatively good general condition after a month's illness and the presence of bile pigment in the urine. With a complete obliteration of the bile ducts the patient would have become progressively worse

and would not have shown the intermittent periods in which a small amount of bile reached the intestine. The same might be said against a new growth pressing from without. Simple catarrhal jaundice was exceedingly rare at this age, but the case probably belonged to this group. The obstructive jaundice was probably caused by a catarrhal inflammation of the bile duct of infectious origin.

A Case of Status Lymphaticus: Dr. G. R. Satterlee presented this case. The patient was a boy, two years of age admitted to the Washington Heights Hospital April 10, 1909. His history revealed nothing unusual except that he had had diphtheria. The child had recently had convulsions on several occasions during the night. These convulsions were becoming more frequent and were usually ushered in by an attack of crying with apparent pain in the lower jaw. Physical examination revealed nothing abnormal except an area of distinct dullness 2 cm. to the left of the left edge of the sternum in the first and second interspaces, and extending on the right almost to the right border of the sternum, above to the upper edge of the manubrium sterni. The area of dullness was continuous below with that of cardiac dullness. This dullness was judged to be caused by an enlarged thymus gland as was confirmed, it seemed to him by the x-ray plates. The heart was hypertrophied, both right and left ventricles, the right border at the right edge of the sternum, the left about one half inch to the left of the normal. There was a systolic murmur over the base in the neighborhood of the pulmonic area. This murmur had since disappeared. The abdominal muscles were rigid, the area of the spleen percussed dull to a moderate extent. The organ, however, could not be palpated. There was evidences of rickets and the right testicle was undescended. There were a few adenoids and the tonsils were slightly enlarged. The deep cervical lymph nodes were palpable and the superficial posterior cervical, axillary, epitroclear and inguinal nodes were enlarged. The thyroid gland was slightly enlarged and the superficial veins running down in the region of the thymus were distended as well as those on the anterior part of the thorax. Blood

examination showed 4,000,000 red blood cells, slight polychromatophilia, moderate number of normoblasts, a few microblasts and 94 per cent hemoglobin, index L. 2. Leucocytes 11,000 differential count, 67% polynuclear neutrophils, 23% leucocytes, 1% eosinophile leucocytes and 1% basophile leucocytes. Examination of the feces showed them to be soft, slimy, stringy, lemon yellow, with very foul odor and much mucus microscopically. The temperature was normal during the first seven days in the hospital. The child remained in the hospital for a week during which time he had numerous convulsions. The treatment was milk diet with milk of magnesia and high saline colon irrigations twice daily. The patient was taken from the hospital on April 17 and returned on April 30. The convulsions were of shorter duration, the stridor less marked, the color of the skin improved and the child was somewhat brighter. Cyanosis was present during convulsions and crying attacks lasted steadily over an hour. On May 5 an x-ray photograph was taken under light chloroform anaesthesia. After beginning the chloroform the pulse became very irregular and intermittent but there were no symptoms of cardiac insufficiency. A diagnosis of status lymphaticus was made, based on the enlarged thymus, the dyspnoea with inspiratory stridor, the enlarged veins of the neck and thorax, the convulsions, preceded by a crying fit and accompanied by inspiratory stridor. Though rickets and intestinal disturbance were present they did not seem to be the controlling factors.

Dr. Saterlee, in discussing the x-ray pictures of this case of status lymphaticus, said that Dr. Walton thought there was mechanical pressure due to the thymus, but he thought it was a symptom complex. Chloroforming a child in this condition seemed rather a peculiar thing to do in order to get the picture and when they finished he had a pretty hard time with the child for a while.

Dr. Northrup asked whether there was any difference in the respiratory murmur and dulness on the two sides.

Dr. Saterlee replied that there was some dulness noted at the left, no respiratory murmur could be detected.

Dr. J. Finlay Bell of Englewood recalled the case of a child that had been admitted to the Englewood Hospital a few weeks ago with pneumonia and who developed inspiratory stridor and mediastinal dulness. He thought that he felt the thymus. After several weeks swelling was noted between the scapulae. This swelling was found to contain pus which upon bacteriological examination was found to contain pneumococci and no other organism. This was evidently an encysted mediastinal empyema, or a mediastinal abscess which gave many of the symptoms and physical signs of status lymphaticus.

Dr. Long said that the case reminded him of one he had seen where very similar conditions were presented. There were convulsions. In this case the diagnosis was intestinal disturbance. Dr. W. P. Northrup said that he did not often make a diagnosis of enlarged bronchial lymph nodes, but cited a case in which the child was quite well nourished and showed a distinct shadow in that region according to the x-ray picture. There was a decided diminution of respiration on one side, and a distinct asthma on provocation. A couple of glands above the clavicle on the same side and a distinct widening of the shadow in the region of the thymus showed as distinctly as the spinal column. On the same side there was diminished respiration, bronchitis and asthma. The bronchi and right part of the trachea were distinctly congested. If the child's head were pushed backward the child stopped breathing. On slight provocation he had distinct attacks of asthma and diminished respiration on that side. He thought this was a case of enlarged bronchial glands.

Dr. John Howland said that judging from the pictures the thymus was slightly enlarged. An enlarged thymus in children did not necessarily mean status lymphaticus. The term status lymphaticus was usually applied to children dying as the result of an enlarged thymus gland when that was the only pathological sign present and there was no other apparent cause for death. This condition was more common than was usually believed. It seemed that in children dying of status lymphaticus that the picture was found because they died so suddenly.

Hochsinger said that he examined thirty cases of laryngeal stridor and found an enlarged thymus shadow in each, and he had also examined perfectly healthy children and found an enlarged thymus in a large percentage of them.

Two Cases of Empyema.—Dr. O. M. Schloss presented these cases.

Case I. This child, three months old, was admitted to Bellevue clinic complaining of cough, fever and loose bowels. She had been well up to one month before admission. Her condition was diagnosed as bronchitis. On examination it was found that the child had profound anaemia and general enlargement of the lymphatic glands.

The left side of the chest looked a trifle larger and moved less on respiration than the right. Tactile fremitus was absent on the left side. The apex impulse was not palpable at the usual site, but about three centimeters within the left mid-clavicular line and corresponded to the fifth interspace. The left side of the thorax was flat on percussion from the angle of the scapula to the costal margin posteriorly and anteriorly from the fourth rib to the costal margin; while above these points the percussion note showed impaired resonance. The signs left little doubt as to the diagnosis and an exploratory puncture showed thick yellowish pus from which streptococci and staphylococci aureus were grown. At operation about 120 c.c of pus was evacuated. Although a simple operation was performed profound collapse followed. After the usual stimulants had been given the child slowly responded and a rapid recovery ensued. The prognosis in this case was at the outset rather bad, as streptococci empyemas were generally regarded as the most virulent form and there was a general impression that infants under six months died more often than they recovered from their empyema. In this case a simple incision was sufficient and he feared that had a rib been resected the outcome might have been different, as the shock from the simple operation had been so profound.

Case II. This patient had an empyema following a pneumonia. He was in the Presbyterian hospital eight days and

during this time several exploratory punctures were made with negative results. During the past few months the child had improved, had gained in weight, had a good appetite and slept well. The physical signs of an empyema were still present but less marked. This patient evidently had an empyema and, although the patient was not operated on, the pus was either removed by lymphatic absorption or by rupture into a bronchus. According to the history the latter was more likely, the drainage being imperfect. Pleural thickening and adhesion had formed and the lung was probably bound down and adherent. The question was had this patient bronchiectasis? The scattered areas of bronchial breath sounds, the occasional cavernous quality and the veiled puff, the periodic expectoration of large amounts of pus, the absence of pleural effusion and the variation in the physical signs at the different examinations were in favor of this diagnosis. It was never possible to examine the patient before and after exploration which would have been a great advantage in the diagnosis.

Dr. Eli Long asked if anyone else could report cases of empyema that had not been operated on.

Dr. W. P. Northrup said that if he remembered correctly the diagnosis was old empyema, that the child had spit up the pus and that absorption and retraction had done the rest. The x-ray showed nothing. The x-ray and needle showed no pus and no operation was attempted.

Dr. Eli Long said that it was interesting to know that the v. Pirquet test in this case was now positive, while two months ago it was negative.

Dr. Schloss stated that the mother had told him that the child had spit up at times as much as a bowlful of material. It seemed probable from the history that operation was not called for.

Dr. Long said that the case was interesting to him because he had the idea that such cases when operated on when under a year old died. If a baby could do as well as this one, it would in the future revise his prognoses in empyema work.

Dr. Northrup said that he had a case only seven weeks old that did as well as this one.

Some Cases of Lispings.—Dr. E. W. Scripture presented some cases which he said might be termed “irregligent speech.” They were characterized by a lack of precision and correctness in using the muscles of speech, and were due to a kind of mental negligence or inattention. These cases could be readily cured by such comparatively simple methods that the general practitioner could effect cures in the course of regular office treatment.

Sarcoma of the Kidney.—Dr. J. Finlay Bell and Dr. S. D. Jessup reported the case of a male infant four months old, breast fed, who had a congenital sarcoma of the kidney. While these cases were by no means rare, they occurred with sufficient infrequency to make each one interesting. From the history and course of this case, together with autopsy findings, one was justified in making a diagnosis of congenital sarcoma of, or in the region of the left kidney, its hilum or ureter, causing obstructive hydronephrosis, multilocular in character. The various loculi corresponded to one or more dilated compartments of the kidney. Dr. Jessup presented the pathologist’s report; the diagnosis was spindle celled sarcoma with cystic degeneration.

Dr. Northrup said that while congenital sarcoma was not very common it could not be said to be rare. One peculiarity was that they seemed to grow from a single pole of the kidney, the tumor being so large that the kidney seemed to be grafted on it.

Dr. Bell said that some time ago Dr. Jacobi reported a case of still-birth, in which there was found sarcoma of the kidney.

Squint in an Infant Eighteen Months Old.—Dr. W. H. Holzapfel reported this case. The squint was corrected by eye glasses. The case was one of many similar types with similar results, showing hyperopia to be the cause of convergent strabismus in most cases. The best results were obtained in children. After an eye became more fixed in position, not only glasses but operation was necessary in order to obtain binocular vision.

Dr. J. Finlay Bell reported two similar cases occurring in his practice during the eighteen months. It was to him a satisfaction to know that a young child's eyes could be successfully corrected with glasses.

Dr. Thomas S. Southworth reported the case of a child two and a half years old with squint. The case was referred to a prominent ophthalmologist in a large Western city, who told the parents to bring the child when it was four or five years old. This was another instance of the fact that the position taken by the best ophthalmologists here had not yet reached the West. It was of the highest importance that such a squint should be corrected early, so that the power of the eye might not be lessened.

Dr. Eli Long said that while the operation for squint in a child was not particularly dangerous it was something that one did not like to undertake, and it was very satisfactory to know that there was some way of avoiding it. Dr. Long then asked Dr. Holzapfel what proportion of cases responded satisfactorily to this treatment.

Dr. Holzapfel replied that satisfactory results were obtained in the vast majority of the cases, though comparatively few cases were seen in infants as the children were seldom brought to the ophthalmologists until they were from five to ten years old.

CHICAGO PEDIATRIC SOCIETY.

STATED MEETING HELD MAY 18, 1909.

I. A. ABT, President.

Paper—"Why a Certified Milk Commission?" by Dr. W. M. French (see page 400).

Report of a Case of Malformation.—By John J. Gill, Ph. G., M. D.

The case was one of imperforate hymen in a girl fifteen years of age, well-developed in every respect, but who had not menstruated. The first indication of trouble occurred three months ago, at which time the patient was unable to urinate. She suffered no pain at all, but complained of a sense of fullness and pressure in the pelvis and was quite restless all day.

Several home remedies were given without relieving the condition and Dr. Gill was called.

The girl had noticed heaviness or fullness about the pelvis for a few days each month for about six months, but no distress had occurred. Catheterization relieved the bladder and examination showed a soft baggy mass distending the vagina and pressing on the rectum and bladder bulging an imperforate hymen.

The treatment was, of course, surgical. The hymen was punctured with a trocar, allowing about one quart of thick, dark non-coagulated menstrual fluid to escape slowly. The thickened membrane was then dissected away and the vagina irrigated.

Examination revealed normal organs except the vagina which was greatly enlarged, as a result of the distention and pressure. She continued to menstruate for about 4 days and has menstruated at regular periods since without experiencing any trouble.

Conclusion: The diagnosis of congenital atresia is based upon the following reasons.

1. There has been no history of any vaginal discharge or inflammatory reaction about this region.
2. There was found a soft, thickened, healthy, spongy hymen with no sign of inflammation or scar tissue present.
3. There had never been any escape of menstrual fluid until after perforation of the hymen.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

SECTION ON PEDIATRICS.

MEETING HELD MAY 25, 1909, DR. J. W. PARRISH, CHAIRMAN.

Paper of the evening—"Some Observations on Hysteria in Children," by Elias H. Bartley, M. D. [Dr. Bartley's paper is enclosed.]

Discussion.—*Dr. Read* said that we should pay more attention to all the nervous disorders of children, especially those which are purely functional. We call in a neurologist to make the diagnosis, but the management and treatment of the case rests upon the pediatricist. We have studied the intestinal and respiratory diseases of children carefully and profitably; we have an opportunity to study the functional nervous disorders equally well. Many cases classed as hysteria are really due to some organic lesion, such as indigestion, worms, phimosis, etc. We must exclude all organic lesions before making a diagnosis of hysteria. The essential element in hysteria is weakness of the will power; and our treatment should be directed largely toward strengthening that weak point. The commonest manifestations of hysteria in children are paralyses; of these Dr. Bartley's third case was a typical example.

Dr. Ager said that he had found most hysterical children suffering from marked anemia and starvation of the nervous system. Most of them need proteid. Forced feeding works very well. In some cases, it is necessary to restrict the energy which would be used up in physical activity by putting the child to bed. Sometimes it is necessary only to insist on the child's lying down before and after eating. A certain quantity of milk and eggs should be given every day; usually after a day or two, the child will take really large amounts without any demur. Hysteria in children is often an indication of abnormal mentality, which later shows itself in criminality.

Dr. Northridge said that he thought hystero-epilepsy was the commonest form. Many of these children are very amenable to punishment; he remembered one case, (which showed definite attacks of hystero-epilepsy), which was cured by advising the mother, in the child's presence, to use a strap the next time a fit occurred. Sedatives are very useful, and often work splendidly, as pointed out in the paper. Attacks of hysteria often have an organic cause which requires treatment. Some authorities say that there is always an organic lesion at the bottom of the hysteria.

Dr. Spingarn said that he had attended a child who had been shot in the shoulder one Fourth of July. The bullet was extracted, and the child recovered completely. At intervals of once a month for several years, the child would complain of burning pain in the shoulder, and of dyspnoea; he would breathe rapidly and complain of air hunger, but physical examination would reveal nothing abnormal. The child remained in perfect health. This case must be hysteria. *Dr. Spingarn* also told of a boy who used to have sudden attacks of anger, during which he would throw any convenient weapon at his best friends or his closest relations. Between attacks, he was quiet and well-behaved. He is now a noted mathematician, and his fits of anger have disappeared.

Dr. Read said that *Dr. Spingarn's* second case was one of mania, and it should be carefully differentiated from hysteria.

Dr. Hutchinson said that he was often called upon to decide quickly whether a child was suffering from genuine feeble mindedness or simple backwardness. The two conditions are hard to differentiate without prolonged observation. There is a new device which may prove of value in helping us decide. It consists of a board with various geometrically shaped depressions in it, and a number of blocks corresponding in shape to the depressions. It is claimed that a child whose mental development is merely retarded will be able to reason from the shape of the blocks to the depressions they are made to fill; but a feeble minded or imbecilic child, if asked to fit the blocks

in their proper places, will be unable to reason as above, and he will try a block in each hole till he reaches the right one.

Dr. Antoniu said that she used compound tincture of cinchona in treating hysterical children. She said that, if the mother is instructed to give the child a dose every time the disease shows itself, and to cease when the symptoms disappear, the cure is often sudden and permanent. Of course the child must be present when the instructions are given.

Dr. Herbert said that he had found most of these children were anemic and needed arsenic. He had found the bromides useful, but he was afraid of chloral in children.

Dr. Edson said that he called most of his cases bad temper, not hysteria.

Dr. Parrish said that he believed that uncontrollable attacks of temper were hysteria.

Dr. Bartley, in closing, said that he calls his cases hysteria because he does not know what else to call them. He thinks that it is not necessary to exclude all other diseases before making a diagnosis of hysteria. A neuropathic inheritance plus indigestion will render a child's nervous system so unstable that slight causes will bring on an attack of hysteria; but it is none the less true hysteria, even if an organic lesion is present. The second case was not a case of temper; the attacks came on without assignable cause, and were very violent. It did not look like temper, and there was no cause for temper. It is not possible to make a diagnosis between imbecility and backwardness on one observation. He had had no experience with suggestion or mesmerism in these cases.

ABSTRACTS.

THE TREATMENT OF SCABIES.—(*American Journal of Dermatology*, Nov., 1908). JOHN G. BURKE finds that the use of Balsam of Peru is much more efficacious than sulphur. In a large number of cases isolated in hospitals, the average time to effect a cure with sulphur was 15 days, while with Balsam of Peru it was 3 days. He says of his method:

"I order them to take a hot bath, and then rub the Balsam of Peru and glycerine mixture all over the body from the neck down, and leave it on for three days making a new application each day. The fourth day I have them take a bath and change their underwear and report at the clinic. They almost invariably say that the first application relieved the itching and allowed them to sleep. On the second visit they are given an indifferent salve and told to return if they are not better, when that has been used up. They very seldom return."

He finds, in conclusion, that Balsam of Peru is a much better remedy in scabies than sulphur for the following reasons:

First. It acts much quicker in relieving the itching and curing the disease.

Second. It does not cause a dermatitis or eczema.

Third. It is a better preventative of the disease spreading to others.

MEASLES AND RED LIGHT.—DR. FLOREA SIMONIESCU, of Bucharest, has just drawn attention to the excellent influence of red light on cases of measles. In 1900, Chatiniere published statistics of the happy termination of eleven cases, but the authors of later contributions almost all passed by these results in silence. The two cases reported by the Roumanian physician are among the most demonstrative. Red light, even when it is not employed in a purely scientific manner as in the case of Dr. Simoniescu's patients, has a remarkable abortive influence on the evolution of measles and of its most serious symptoms, such as for example the broncho-pneumonia and the pyrexia. It is not necessary to have recourse to expensive methods, such, for example, as those of photo-therapy after Finsen's method. A plain room that is large, completely painted in red, the windows, and the furniture being also of the same color, are sufficient and may render great services in a hospital. In default of this, in ordinary practice, only having red curtains for the windows and a lamp with a red chimney, burning in a corner may prove sufficient. It is probable that

the measles agent and its toxine very rapidly lose their pathogenic powers under the action of red light. This latter acts in a different manner than does a serum; it has an intense abortive action, in contradistinction to that which is curative. The patient finds himself, in this case, under the influence of a simple febrile condition which disappears rapidly. Even one of the most serious complications, that is to say bronchopneumonia, not only is benefited by the influence of red light, but it is cured. The idea is that these broncho-pulmonary conditions are produced by the same eruption which has localized itself on the pulmonary and parenchymatous tissues. The future and the observation of a larger number of cases will certainly afford a solution to the problem some day so far as the action of phototherapy in such cases is concerned.—*American Jour. Dermatology*, Dec., 1908.

DIGESTIVE DISTURBANCES IN RACHITIS.—(*Presse Médicale*, Paris, Nov. 14, 1908). MARFAN has studied for several years the digestive conditions in children with rachitis and in those who develop it later, both in private and hospital practice. The prodromal or initial disturbances are a recurring catarrhal gastroenteritis or a spasmodic dyspepsia with repeated vomiting. The form observed in confirmed rachitis is a dyspepsia from atony with distended, flabby abdomen. Bottle feeding alone is unable to induce rachitis; it is merely a predisposing factor. The real causes of rachitis are chronic infections or intoxications—in the widest sense—occurring at a certain phase of ossification and blood production. This phase extends from the last months of intrauterine existence to the end of the second year. It is during this time that the modifications of the bone marrow resulting from these infections or intoxications interfere with the normal formation and growth of the bone tissue. In studying the antecedents of a rachitic child it is only exceptionally that some infection or chronic intoxication is not discovered during this period. The most common are chronic or recurring digestive toxo-infections, prolonged or recurring bronchopneumonia, multiple and recurring subcutaneous abscesses or prolonged suppuration of eczematous surfaces, and inherited syphilis. These factors act most powerfully on a predisposed soil, and bottle feeding, especially when it has been used from birth, and heredity, are the most effectual of the predisposing agents. Subordinate to these are the factors of dampness in the home and deprivation of air and light.

SKIAGRAPHY OF THE NEWBORN.—VAILLANT and BOUCHACOURT (*Ann. d. hygiène publique et de médecine légale*, 1908, ix, 65) have made a number of skiagraphic studies to determine whether it is possible to tell whether a dead child was dead at

birth, whether it died shortly after, or some time after birth—with the following conclusions: (1) In children who have not lived at all no organs are visible on the skiagraph. (2) In children who made a few respirations the stomach alone is visible; the greater the number of respirations the clearer and larger is the picture of this organ; from the size of a small pea it becomes the size of a large bean. (3) In children who lived from one to fourteen hours the stomach picture is still clearer and larger; the intestine also became visible in the skiagraph. (4) In children who have lived several days without nourishment, more of the abdominal viscera become visible, and the lungs, which have not been permeable to the x -rays until this moment, become visible in the picture; the liver becomes sharply outlined, as well as the shadow of the heart, although the latter is not always so clear. (5) In children who have been fed for several days all the organs are more visible, and the gases contained in the intestines produce a better picture of the intestinal loops.

ALBUMINURIA IN SCABIES.—NICHOLAS and JAMBON (*Ann. de dermat. et de syphil.*, 1908, No. 2), in a series of 100 cases of patients with scabies, found albuminuria sixteen times. From their study of the literature and from their own observations they conclude that scabies is frequently accompanied by albuminuria, which in its appearance, duration, and disappearance is essentially dependent upon the cutaneous lesions which have given rise to it. Besides the physiological and medicamentous albuminurias, and the albuminuria due to previous Bright's disease, which one may meet in scabies, there is undoubtedly a true albuminuria arising from the evolution of the acarus in the skin. This scabious albuminuria may present itself under two clinical types: (1) Simple, scabious albuminuria, so called without any subjective or objective symptoms, a chance clinical finding, disappearing rapidly after treatment of the scabies, due perhaps to a slight nephritis; (2) true scabious nephritis, with a more or less complete train of the classical symptoms of acute, subacute or chronic nephritis, disappearing with the scabies, or persisting after the cure of the dermatosis. The albuminuria of scabies does not seem to be due to any single cause nor to arise from the single lesion. Sometimes it is a true toxic nephritis, more or less marked and profound; sometimes it arises from the cutaneous irritation alone, being due to reflex modification of the renal circulation or of the functions of the renal epithelium.

PEDIATRICS

Vol. XXI

AUGUST, 1909

No. 8

ORIGINAL ARTICLES

A PRACTICAL METHOD OF REDUCING THE INFANT MORTALITY FROM SUMMER DIARRHOEA.*

BY CHARLES HERRMAN, M. D.,

ATTENDING PEDIATRIST TO THE LEBANON HOSPITAL; CLINICAL
ASSISTANT IN PEDIATRICS, VANDERBILT CLINIC, NEW YORK.

For the purposes of this discussion, mothers may be divided conveniently into three classes:

1. The well-to-do and those in medium circumstances.
2. Those who are not so poor that they must go to a dispensary for medical advice, but are able to pay only a small fee.
3. The poor, who constitute the vast majority of tenement house mothers.

The first group is in a position to obtain anything that money can procure; a skilled physician; a competent nurse; the purest milk. If the mother cannot nurse the baby herself she can hire a wet nurse; or if she decides on artificial feeding, she can obtain the very best milk prescribed by a first class physician and prepared at the laboratory or by a trained nurse.

*Read before the Medical Society of the Borough of the Bronx, June 3, 1909.

Those of the second group who are able to pay a small fee for medical advice, are seen to a great extent by the younger practitioners—the recent medical graduates. It is a curious fact that many adults who hesitate to entrust themselves to the care of a young physician, are perfectly willing to allow their babies to be so treated. There seems to be a notion that the difficulties are in direct proportion to the size of the patient, and that the infant organism is of such simple construction that no special knowledge is required for its treatment. Early in his career the recent medical graduate will be called upon to instruct these mothers in the care and feeding of their babies, and the greater his knowledge of the subject the better will he be equipped to fight intelligently in the warfare against the high infant mortality. Whether the average medical graduate has a satisfactory knowledge of these subjects may be questioned. I shall discuss this topic at another time.

The problem of infant mortality however must be solved in the tenements. By reason of large numbers and gross ignorance the vast majority of deaths occur here. There are many factors which enter into the problem. The milk supply of New York City has been decidedly improved during the last few years, and it is questionable whether a still further improvement which under the present conditions would be difficult and expensive, would be followed by a marked lowering of the death rate. The questions of poverty, poor housing, alcoholism, cannot be materially influenced within a few years. What can be done *now*? It is a significant fact that the infant mortality is highest in those countries in which illiteracy among the women is greatest. The colossal ignorance of the poor on questions of infant feeding and hygiene can be *immediately* dealt with. Aside from economic and humanitarian considerations the health authorities and physicians are in duty bound to see to it that there is no needless waste of human life. In no department of medicine are proper measures more likely to be followed by rapid and striking results than in the reduction of the infant mortality.

About forty-five per cent. (approximately 50,000) of the annual births in New York City are conducted by midwives. I

have questioned a large number of the mothers who were so attended and have found that very few had received adequate instruction as to how their baby should be fed and cared for. It is true that we have a number of dispensaries and milk depots at which they may receive the proper instruction, but how many of them take advantage of these opportunities? Comparatively few. The majority are satisfied with the advice of their relations and friends, and nine times out of ten the advice is incorrect. Those who need the instruction most are usually the last to seek it at the proper place. If finally they decide to go to a dispensary it is when symptoms of indigestion and malnutrition have already appeared, and then it is often too late. If the mountain will not come to Mahomet, Mahomet will have to go to the mountain. If they will not come to us we must go to them. Mothers do not know instinctively how to feed their infants. The plan which I suggested two years ago (*Archives of Pediatrics*, July, 1907) and which has since been adopted by the Department of Health, is to send a nurse to the tenement mother soon after the receipt of the birth certificate from a midwife or person not a physician. The mother is given the necessary instruction in infant feeding and hygiene, printed directions are left and re-visits are made according to the necessities of the case, especial attention being given to ignorant, careless mothers and to illegitimate, artificially fed and boarded babies. The great advantage of this method is that it gets the child at the start before any harm has been done. The death rate is very high during the first month. If the mother is in extreme need and lacks proper food, the facts can be called to the attention of some charitable agency. In many cases by giving employment at home, the mother would be enabled to continue nursing her infant, and would not be compelled to give it into the hands of some irresponsible person who can hardly be expected to take the proper care for the trifling sum which she receives. Treatment by the Inspectors of the Health Department, by the dispensary or hospital may be advised when necessary. However, the most important point and the one which I wish especially to emphasize is that by this method the vast majority of these babies *can be kept at the breast*.

Everyone is familiar with the low mortality among breast fed infants, even under the worst hygienic surroundings. It has been well said that the only proper method of humanizing or maternalizing cow's milk is to pass it through the mother. There is no bacterial contamination of the milk or of the receptacles with which it comes in contact; no sterilization, no great danger of overfeeding. If the babies are seen later, that is when a few months old, the damage has already been unnecessarily discontinued. I believe that most physicians would be surprised to learn how large a percentage of women among the poor are able to nurse their infants. The average dispensary service gives a very erroneous impression on this point. A canvass of the city by the Department of Health which included almost all the tenements of the Borough of Manhattan, showed that about 80 per cent. of these mothers *give* the breast. A still larger percentage *could* if they received the proper encouragement and assistance. During the past month I inquired of all the mothers who brought their babies to be vaccinated at the Lebanon Hospital Dispensary and found that 90 per cent. were nursing their babies. An investigation has also brought out the fact that a large number stop nursing or are advised to do so for insufficient reasons. The following case is a striking example of such a mistake. A baby was born at a maternity hospital April 14, 1909, weight seven pounds. It was discharged April 26, twelve days old, weighing six pounds and six ounces, i. e. ten ounces less than at birth. According to the history the mother apparently had a sufficient amount of milk but the baby vomited and failed to gain in weight, so it was put on mixed feeding, a milk formula in addition to the breast. Brought to the clinic on April 28, two weeks old, weight six pounds and ten ounces. The baby was the second child, the first was nursed successfully for one year, the mother stating that she had *more than enough* milk at that time. Weight of the baby before nursing 6 pounds, 10 ounces; weight of the baby after nursing, 6 pounds, 14 ounces; that is, a baby of 2 weeks was taking 4 ounces at a feeding. The reason for the constant vomiting and

the failure to gain in weight was evident. The addition of cow's milk was not only unnecessary but harmful.

In concluding I should like to emphasize the following points. Notwithstanding the unfavorable hygienic surroundings the mortality among breast fed infants in the tenements is low. Fully ninety per cent. of the tenement house mothers can nurse their infants if given the proper encouragement and assistance. The absolute contraindications to breast feeding are *very few*. It is often stopped for insufficient reasons. This can be prevented by visiting the mother shortly after the birth of the child and advising her not to discontinue nursing unless so advised by a physician.

By improving the nutrition of the mother the quality and quantity of breast milk may be improved. Milk may be made to reappear in a breast which has not functionated for some time. One of the best stimulants to secretion is the vigorous sucking of a strong healthy infant.

250 West 88th Street.

THE FEEDING OF DIFFICULT CASES IN HOT WEATHER.*

BY GODFREY R. PISEK, M. D.

In discussing the subject of difficult feeding cases in hot weather one should have a clear conception of what is meant by this term. A case that might be classed as difficult by an inexperienced feeder or one who had not mastered the science of infant nutrition, might be considered a simple case by a feeder of experience or by one who had broadly studied the principles of artificial infant feeding. But there is also a second class of cases the management of which is difficult even to the experienced or highly trained pediatrician.

The first class of difficult cases are those which were normal at birth and may have been breast fed for a time, when for some reason artificial feeding was begun and perhaps managed only by the mother and her friends. Unsuitable mixtures and improper administration with constant changes of the food bring on a form of chronic indigestion. This class however, is amenable to treatment and usually promptly responds to rational methods of feeding and carefully regulated habits of life.

On the other hand, the second class of cases which are difficult even for the experienced feeder comprise those infants whose previous management has been so bad that they have drifted into a marasmic condition and those infants who have inherent constitutional inability to assimilate sufficient nutriment in its commoner forms.

The great factor in the management of these cases consists in arousing the dormant powers of the digestive and assimilative functions.

The principles of nutrition are the same for all classes of infants and may be briefly stated as follows: A certain small

*Read by invitation before the Bronx Medical Society of N. Y. City.

quantity of protein and mineral matter is necessary to replace normal metabolic waste. A variable quantity of fats and carbohydrates is needed to supply sufficient energy and under certain circumstances heat. In the general subject of animal nutrition such a quantity of food is called a maintenance ration as on it the infant would neither gain nor lose.

For growth, a supply of protein and mineral matter in addition to that required to replace waste is needed as new tissues are formed principally from the protein and mineral matter and not from the fats and carbohydrates.

Gain in weight can be produced by increasing the amount of fat and carbohydrate in the food, but gain in weight and growth are not synonymous. True growth consists in the formation of new blood and tissues from the protein and mineral matter of food. Gain in weight may result in the storage of fat produced from the fat and carbohydrate of the food.

The normal food for an infant is its mother's milk and thus differs from other combinations of the food elements in that its proteins partially solidify in the stomach when acted upon by the infant's digestive secretions. The milk of all animals has this same property but the physical character of the milk when curdled in the stomach differs in the different species directly as their methods of digestion differ.

In selecting a food for permanent use of infants it should contain about the same proportions as the mother's milk to enable proper growth and development to take place.

The food should also have the property of reacting with the gastric secretions to more or less solidify in the stomach as does mother's milk.

For difficult cases resulting from previous improper feeding the method of management should be—to obtain a careful detailed feeding history. If it is found that there is no true milk intolerance the feeding treatment would be to place the infant at first on a mixture that would be practically a maintenance ration such as a $\frac{1}{2}$ to 1% proteins, $\frac{1}{2}$ to 1% fat and 6% carbohydrates. Such mixtures would enable the infant to hold its own while its digestive tract was becoming accustomed to something approximating a rational mixture. If it is found that such mixtures are

tolerated, the proportions of proteins and fats should be cautiously increased to enable proper development to take place. In making up these mixtures whole milk may be diluted with boiled water, plain or dextrinized gruels. In case the milk disagrees as will be shown by curds and mucus in the stools, an effort should be made to control the difficulty by changing the diluent as e. g. from water to a plain or dextrinized gruel.

If the case does not respond to this change in the diluent, methods may be employed that will chemically alter the milk so that it will not react normally with the gastric secretions. Such changes are brought about by the addition of a quantity of lime water equal to the amount of actual cow's milk used in the mixture. Another method available is to add one grain of citrate of sodium to each ounce of the food which completely inhibits the formation of curds.

It should be remembered that these chemical additions although valuable temporarily, must not be continued indefinitely as their routine use violates one of the fundamental principles of infant feeding.

For those cases which we all find difficult to manage there are no fixed rules of treatment. There are a number of food mixtures which may have the same nutritive value and yet differ widely in their physical properties in the stomach, and in their flavor, odor, and taste. Success may often be obtained by utilizing one of these mixtures which may either by its taste or flavor arouse the dormant functions of the infant. It is essential therefore to be resourceful and to have at one's command as wide a variety of food mixtures as possible. In this class are the meat broths, the broth and gruel mixtures, egg and gruel mixtures, whey and cream mixtures and milk paps. For example a case of marasmus may show some gain in weight after being fed on a series of foods as the following:—broth and gruel alternating with a weak whey and cream mixture, later yolk of egg may be substituted for the broth and gruel, and finally foods modified as directed for the first class of difficult cases may be used. The aim should be to eventually supply such a food as will approximate human milk in its nutritive value, and digestive properties.

An effort should always first be made to place the infant on breast milk. The benefit of even a few feedings a day is much greater than is generally supposed and a wet nurse should not be considered as a last resort.

The special management of these cases during the heated term also includes a consideration of the excretion of heat.

As is well known, the food during all seasons, summer and winter, is composed of fats, carbohydrates, proteids, mineral salts and water, and no matter what form the food may have, it must contain all these elements if it is to sustain life continuously. But there is another very important, although intangible, ingredient embodied in the fat, carbohydrates and proteins, and that is energy, which plays an essential part in the life processes.

Physiologic study has taught us that the waste products of food are excreted as feces, the oxidation products as carbondioxid and water from the lungs, and that the end products of protein metabolism are eliminated as urea, etc., by the kidneys. As physicians, we have learned to pay close attention to these excretions, for we know that profound disturbances result from their retention, but we have not yet clinically recognized the fact that all the utilized energy of the food is transformed into *heat and as such must be eliminated*. Heat is an excretion of the body as truly as urea is, and it has been calculated that if no heat were to be excreted for twenty-four hours the body would be at a pasteurizing temperature. All the urea might be retained for some hours without serious discomfort, but retention of the heat of the body for a brief period produces great distress and depression.

In the summer months this excretion of heat is not easily accomplished and therefore the production of heat should be reduced as much as possible. The energy expended in transforming food during the digestive processes and in its metabolism is liberated as heat. The more difficult of digestion the food is, the more heat is produced, and for this reason easily digested food is imperative for the difficult feeding cases. It is in these infants that mistakes even of small degree produce maximum effects or even bring about a fatal issue. These infants have lost almost all ability to adapt themselves to the food given and they

gain only when the food presented is such as can be assimilated with the least effort and expenditure of energy. Therefore to keep down the production of heat, light, *easily digested food* and a minimum of body activity are essential.

When the circumstances allow, an infant should be sent from the over-heated, over-crowded city in the summer time, preferably to the sea-shore. Explicit written directions as to the kind of milk to secure and how to prepare it should be supplied with a set of suitable formulas which are to be used, provided a certain steady gain in weight is being made.

A large group however are the babies who must stay at home, and who have had only a minimum amount of medical attention or perhaps none at all until presented as doing badly in hot weather.

Excess of the body heat is removed by evaporation or perspiration which leaves a residue of fats and salts which retard further evaporation and hence tends to retain the heat. For this reason order a bath twice a day, especially on humid hot days when evaporation is almost negligible. If on hot humid nights gruel feedings are substituted for milk feedings, less body heat will be produced and consequently less depression. This may tend to prevent attacks of diarrhoea and in all events will make the child more comfortable.

TWO CASES OF ACCIDENTAL VACCINATION.

ISAAC M. HELLER, M. D.,

NEW YORK CITY.

While in the Royal University Eye Hospital at Königsberg Germany, November, 1908, I had the opportunity of observing the following interesting case:

Boy, aged 14 months, was brought in with left eye closed. Lids, especially the lower were swollen, reddish-gray in color and a free discharge glued the two lids together. On washing this out, a small irregularly shaped, pus-covered ulcer about 3 m.m. square was brought to view a few millimeters below the lower lid margin. Surrounding this were four or five pin head-sized pustules in an infiltrated, quite inflamed but not particularly sensitive area. Conjunctiva somewhat congested but fortunately cornea was not involved. An infection was apparent but just what kind was not clear until we obtained the history. Examination of a smear was negative aside from a few staphylococci. His little sister, aged six, had been vaccinated sixteen days before. Her arm showed a take which was beginning to dry nicely but which seven or eight days previous had discharged quite freely. It was evident that the baby's eye had become inoculated one week before with some of this secretion and really the wound looked like a vaccination of a week's standing, making allowances for the situation. There was nothing done beyond cleansing; swelling became less and after twelve days the scab dropped off leaving a red scar, such as seen on the arm under similar circumstances. Some weeks later the child was vaccinated on the arm for purposes of control but with a negative result.

While writing the above a similar case came to the author's attention. Boy, aged 6 years, was vaccinated five days ago by the Board of Health. On his left arm was a take the size of a

dime in the vesiculo-pustular stage without discharge. His mother brought him because of a "cold in the head." At the margin of the rt. alae nasi were four tiny pustules and on the rt. septum at the locus Kieselbachi was a grayish-red membrane the size of a little finger nail which bled at the slightest touch. Septum was swollen and tender and the inferior meatus barely admitted a probe. The source of inoculation was not his own arm. Firstly his arm had never discharged and secondly his arm and nose showed the same stage. He had been vaccinated in company with numerous others and in same manner had gotten some fresh virus on his fingers, scratched his nose and so was simultaneously vaccinated in two different places. Cases like these while not extremely rare are certainly not common when the frequency of vaccination is considered. They illustrate also how careful we should be with the vaccine virus especially about unvaccinated children. The prognosis is usually favorable, the treatment nothing beyond cleanliness.

New York City.

PEDIATRICS

FREDERIC W. LOUGHRAN, M. D., Editor

Published Monthly by F. M. Crossett Co., Inc., Burlington, Vt., and 30 West 33rd St., New York.

Telephone, 731 Madison.

Editorial Office: 742 Prospect Avenue, New York City.

Telephone, 607 Melrose.

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EDITORIAL.

It is announced that a conference on the Prevention of Infant Mortality will be held under the auspices of the American Academy of Medicine on November 11 and 12, at New Haven, Conn.

The discussion of the subject will be divided into four sections—medical, educational, institutional, and philanthropic. The officers of the sections are as follows: Medical, Dr. J. H. Mason Knox, Jr. of the Johns Hopkins Medical School, Baltimore, chairman; Dr. Richard A. Urquhart, Baltimore, secretary; philanthropic, Mr. Edward T. Devine, editor of the *Survey*, chairman; Miss Lilian Brandt, secretary; institutional, Mr. Homer Folks, secretary of the New York State Charities Aid Association, chairman; Miss Mary Vida Clark, secretary; educational, Prof. C. E. A. Winslow, of the laboratory of sanitary research, Massachusetts Institute of Technology, Boston, chairman, and Dr. Henry I. Bowditch, Boston, secretary. The topics discussed will include such as congenital debility, improper care and environment, communicable diseases, unclean or unsuitable

food, and the dangers which arise from unhealthful surroundings, special attention being given to the life of the child in a large city. Dr. Helen C. Putnam, of New Haven, is chairman of the executive committee, other members of the committee being: Dr. George Blumer, professor of the theory and practice of medicine in the Yale Medical School; Dr. F. H. Gerrish, of Portland, Me.; Dr. D. C. Hawley, of Burlington, Vt.; Dr. J. Madison Taylor, of Philadelphia; Dr. James H. McBride, of Pasadena, Cal.; and Dr. Charles McIntire, of Easton, Pa.

In order that the discussions be of value, they should be of practical methods, not utopian as is too often the case in conferences of this character.

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ABSTRACTS.

MEAT BROTHS FOR INFANTS.—W. STOELTZNER (*Medizin. Klinik.*, Feb. 7, 1909) has obtained excellent results, in the case of infants brought to him with gastrointestinal symptoms due to a diet of flour foods and sugar, by putting them on a mixture of milk and meat broth. Bretonneau in 1818 first attempted to feed young infants suffering from atrophic chronic gastrointestinal symptoms on milk mixed with broth instead of with water; since that time the system of infant feeding has never fallen into absolute disuse in France, some doctors recommending it, as did Bretonneau, only for atrophic infants, others for any infants for whom breast feeding was not obtainable. In Austria, Mayer in 1850, Monti and v. Huttenbrenner later, have all advocated the dilution of milk by broth, Monti for children with rickets, and v. Huttenbrenner even for new-born children. In Germany A. Steffen recommends a mixture composed of 50 grammes of milk, 50 grammes of meat broth, 1 teaspoonful of cream, and 3.8 grammes of milk sugar as an infant food, failing human milk.

Although from time to time the use of meat broths as a diluent of milk for infants has been recommended, it has never become widely popular. Stoeltzner, in the present article, describes his own experience and finds that meat broth is indicated for cases of "tabes mesenterica," or atrophy, caused by a flour diet. He reports fourteen such cases, one of them dating back to 1905, the other thirteen belonging to the years 1907 and 1908. The broth used was made from beef or veal, and was of ordinary medium strength; sugar was never added to the mixture. The relative strength of milk and of broth in the mixture varied according to the case. The average age of the children was five months, with an average weight of 4055 grammes (9 pounds approximately). Seven of the children had never been breast-fed, the other seven had been breast-fed on an average for 2.7

months. The length of time of feeding on flour food was not less on an average than two and a half months. Eight children during the whole of this time had not been given any milk at all; six had received small amounts of milk along with the carbohydrates; to this group belonged one child fed on Nestle's food and three on condensed Swiss milk. Eight out of the fourteen children suffered at the beginning of treatment from diarrhea, which in some cases had persisted for weeks and months. Six children were in an especially serious condition; two of them showed pronounced myotonia; one obstinately refused food. One child at three months weighed only 2970 grammes ($6\frac{1}{2}$ pounds approximately). Unfortunately, in nine cases the treatment was only carried out for a short time; but even these cases served to show that diarrhea, when present, quickly stopped when feeding with the mixture of milk and broth was begun. In six out of the nine cases a gratifying increase in weight became evident; of the remaining three, one child during the time of the diet suffered from an influenza-like feverish attack, a second did not take enough food, a third soon after the beginning of the treatment began to have dry, crumbling stools. The course in the five cases which remained longer under treatment was very favorable; immediately or soon after the beginning of treatment the weight in each case began to go up, and the further increase left nothing to be desired.

Although the whole number of cases is not large and they all belong to the hospital class, yet the results were so clear that the author finds himself justified in considering that the symptoms due to a flour-food diet form an indication for the milk and meat-broth diet. Further information is needed as to how long the diet should be persisted in. Two of the cases appeared to indicate that the milk and broth mixture was only of value for a few days, and that some children could after that return to milk and flour mixtures.—(*British Medical Journal*, March 27, 1909).

THE TREATMENT OF WHOOPING COUGH.—There are few diseases so slightly serious in themselves, in distinction from the gravity of their complications, which yield so little to therapeutic measures as does whooping-cough. We think that every practitioner of large experience will agree with Carpenter, who contributes a paper to the *Proceedings of the Royal Society of Medicine* for January, 1909, when he states that the treatment of pertussis has been, in his experience, most unsatisfactory. He has used a host of remedies internally, and by local application, and found that they were all of little or no value. He has no faith in quinine, but little in the bromides and belladonna, and still less in the impregnation of the air of the room with carbolic acid vapor from suspended cloths. He points out, however, that there are a number of measures which can be undertaken by the physician which are of very material advantage to the child who may be affected by this pertinacious malady. The first of these is the recollection that lung complications are exceedingly frequent and nearly always serious; that inanition from frequent vomiting and loss of appetite is by no means uncommon; and again, that emotional disturbances such as rage and fear may produce severe paroxysms, and that any source of powerful irritation may do likewise, such as an overloaded stomach, exposure to cold, or an examination of one of the body orifices. In other words, careful and appropriate hygienic conditions with plenty of fresh air and a mild temperature are essential, and frequent feeding with small and easily digested meals is advisable—the child being at once refed when a sharp attack has caused it to empty its stomach. Carpenter believes that attention to the condition of the nasopharynx during the course of the disease is essential, and that Dobell's solution, or some other alkaline solution, used as a douche or gargle in children who are old enough to have it employed, is distinctly advantageous. He believes that the temperature of the room should be in the daytime as low as 60° and at night as low as 55° Fahr.; and finally he insists upon the importance of prophylaxis, since by this means other children are protected who, if they fall victims to the disease, will in a certain proportion of cases die from its effects. In other words, children with whoop-

ing-cough should be isolated, and this is particularly essential where other children below the fifth year of age are in danger of exposure, since it is in this type of case that the pulmonary complications so frequently cause death. Again, Carpenter is one of those who believe that an attack of whooping-cough distinctly predisposes to tuberculosis, and he asserts that in England an unusually large proportion of children die of tuberculosis subsequent to whooping-cough. While this has not been our experience, at the same time it emphasizes the necessity of protecting children from both infections.—(*The Therapeutic Gazette*, June, 1909).

THE TREATMENT OF SCABIES OR COMMON ITCH.—BUNCH states, in the *Lancet* of April 3, 1909, that when he sees a general eruption, scratched or pustular, and when the patient complains of itching, he always looks for burrows, whoever the patient may be. If he can demonstrate an acarus there can be no question of the diagnosis, and he does not consider it within his province to inquire from whom the acarus came. It is a fact, however, that one variety of mange in the dog is due to an acarus which may infect man, and persons who have much to do with dogs may become infected in this way. The face is always affected in these cases, whereas ordinary scabies does not cause any lesions of the face in adults.

The treatment of scabies aims essentially at opening up the burrows, destroying the acari, and allaying the itching. The best way is to make the patient soak in a hot bath for a quarter of an hour, then scrub himself with soft soap, using a nail-brush for the hands and feet. After washing off the soap the sulphur ointment of the Pharmacopœia is rubbed all over the skin, except the face, and left on for three days. The patient then has a starch bath to allay the irritation and applies boric ointment to any patches of dermatitis which may be present. It is important not to use any sulphur after the third day, otherwise an unpleasant degree of eczema or artificial dermatitis may be set up which will cause great itching. In place of sulphur, B-

naphthol in 20 percent ointment may be rubbed in after the bath and again on the three following days. It has the advantage that it is odorless and cleaner than sulphur, but it is not so efficacious. The same may be said of balsam of Peru, and the writer prefers to order sulphur. In any case, the clothes must be disinfected and the patient kept under observation for ten days to make sure that all ova have been destroyed.—*Therapeutic Gazette*, June, 1909.

DIFFERENTIATION AND INTERNAL TREATMENT OF STENOSIS OF THE PYLORUS IN INFANTS.—(*Therapeutische Monatshefte* Nov., 1908). IBRAHIM enumerates the differential points and outlines the internal treatment, which has proved extremely successful in his hands in fifteen cases. Experience has shown that the hypertrophy of the pylorus increases and recedes, and influences can be brought to bear to favor its relaxation. During life the stenosis is by no means the hard ring found in the cadaver, and everything shows that the hypertrophy can be reduced by appropriate measures. The chief aim is the neutralizing of the acid stomach content with a mild alkaline water with the milk or between the meals. The act of sucking the breast induces a predisposition to spasmodic contraction of the pylorus, so that he finds it advisable to draw the breast milk with a modern breast pump and feed it to the child with a spoon, possibly removing the fat. The breast secretion can be kept up for two or three weeks in this way. Very small amounts of the milk, ice cold or merely at room temperature, are less liable to induce vomiting. He reduces the feeding to 30 gm. (a little less than an ounce) every two hours, or one-third this amount every hour, day and night, with possibly tepid Vichy water between meals in the same amount. This strict dieting should not be kept up for more than 8 or 10 days without supplementing it with rectal nutrient enemas. The stomach should be rinsed out every day and a cataplasm applied to the region of the pylorus to reduce the pain and favor the relaxing of the spastic stenosis. In severer cases he has these cataplasms applied immediately after the meals, every 4 hours,

day and night, for several weeks, removing the cataplasms as soon as it cools. Pfaundler recommends for the same purpose a Japanese pocket stove. With these measures complete recovery is the rule, and the stenosis never recurs, although nervous disturbances may be observed in later life. This fact suggests that such children require special oversight for prophylaxis. The differentiation of this form of stenosis is not difficult. The symptoms seldom develop before the end of the first or during the second, third or fourth week or even not till the eighth week. The first sign is frequent vomiting and decline in weight with the absence of intestinal dyspepsia. There is generally constipation and the stools are dark brown or a light meconium. The inefficacy of ordinary measures to control the vomiting and the explosive character of the latter, the absence of bile in the vomit, the pain during drinking and the extreme hunger of the infant, all aid in the differentiation, confirmed by the violence of the peristalsis in the stomach and the discovery of the tumor formed by the enlarged pylorus. Only 45 percent have been saved to date out of the 138 children operated on for this trouble, but if the symptoms continue to progress, operative treatment should be considered after 8 or 14 days, not waiting until the child has become too debilitated to stand any operative intervention.

DUODENAL ULCER IN CHILDREN.—(*Berliner klinische Wochenschrift*). KUTTNER found an ulcer in the duodenum in the cadaver of an infant a month old who had succumbed to intestinal hemorrhage. In a second case three round ulcers were found in the duodenum of a child of 4 dying with acute diarrhea and vomiting of blood. He is inclined to believe that an ulcer in the duodenum may be a cause of stenosis of the pylorus in infants; the reflex spastic contraction of the pylorus may lead to functional stenosis. This assumption is sustained by the fact that admixture of blood has been observed in the vomit in cases of stenosis of the pylorus, and even coffee dregs vomit. Another argument in favor of this assumption is the unusual amounts of free hydrochloric acid sometimes encountered with the stenosis.

Torday has reported a positive case in which an ulcer was found in the duodenum after death at the age of 8 months with the syndrome of congenital stenosis of the pylorus. In obscure anemic conditions in infants and young children, the possibility of an ulcer in the duodenum should be borne in mind and the stool examined for occult blood. Treatment of ulcer in the duodenum should be along the same lines as for ulcer in the stomach. If there is hemorrhage, hot cataplasms to the stomach region should be replaced by application of ice. Operative treatment has little chance of success during the shock from extensive hemorrhage.

HEMORRHOIDS IN CHILDREN.—A curious example of the disagreement of experienced men concerning a very simple matter of observation is afforded in an article by Dr. Denis G. Zesas, published in the *Archives générales de chirurgie* for October 25th. It was in 1873, in the *Gazette des hôpitaux*, says Zesas, that Lannelongue asked the question, Do children have hemorrhoids? Bouchut replied that hemorrhoids did not exist in children, and that any diagnosis of them in childhood was erroneous. Gosselin was of the same opinion, and he said: "Whenever children said to have hemorrhoids have been brought to me, I have found nothing but a rectal polypus." Giraldès, however, wrote as follows: "Hemorrhoids, very rare in the child, form bluish tumors due to dilatation of the veins, and are readily to be seen if we separate the folds of the verge of the anus." Jobert de Lamballe and Dupuytren were more uncertain, the former declaring that hemorrhoids were so rare in children that some authors denied their existence. Lancereaux called them exceptional, and Curling rare. Other authors are cited to the same effect.

On the other hand, a writer called "Ernka" in the text and "Truka" in the bibliography (neither of which names we find in the *Index Catalogue*) is said to have reported thirty-nine cases, and Potain, speaking of the heredity of hemorrhoids, relates the case of two children of the same parents who were born with hemorrhoids. Henoch is cited as having met with only three

cases in his long career, in children aged three, six and seven years respectively, and Houzel as having found but four instances among about 500 children examined, though he speaks of a "hemorrhoidal state" which he regards as likely to end in the formation of true hemorrhoids. Reinbach is inclined to believe that hemorrhoids would oftener be found in children if the region of the anus was more frequently examined.—(*N. Y. Med. Journal*, Dec., 1908).

INFANTILE SPLENIC ANEMIA.—(*Lancet*, Jan., 1909). W. K. HUNTER gives extensive clinical notes on ten cases and presents much tabulated material which must be consulted in the original. He refers to three clinical types of the disease, the chief point of distinction between them being the degree of leucocytosis that may happen to be present. In the first type the blood picture is much the same as in splenic anemia of the adult, that is, the white cells are diminished instead of being increased in number and there is most often a lymphocytosis. In the second type the leucopenia is replaced by a moderate leucocytosis, fourteen thousand to twenty thousand per cu. mm. The proportion of the various white cells is little altered, although some myelocytes are to be found in the stained films. This type is more severe than the preceding, and includes most of the cases described under the name of Splenic Anemia of Infants. There is still a third type described (von Jaksch) as pseudoleukemic anemia of infants. Here there is a greater leucocytosis even up to one hundred thousand per cu. mm. Differential counts almost always show a definite proportion of marrow cells and generally there is a greater variety of leucocytes than in normal blood. Most often the lymphocyte predominates, but occasionally the polynuclears. Examination of the red cells in all three types shows nothing distinctive. The causes of the condition are the same as those for ordinary secondary anemia without splenic enlargement. Recovery may occur in the infantile type of the disease.

SOME OF THE VAGARIES OF THE OBSTETRICIAN FROM THE STANDPOINT OF THE PEDIATRICIAN.—(*Boston Med. and Surg. Journal*, Jan., 1909). J. L. MORSE comments on the subjects of cyanosis and congenital heart disease, phimosis, breast feeding, artificial feeding, premature infants, icterus and sepsis, autointoxication, and congenital deformities in the newborn. He says that most obstetricians refer cyanosis to heart disease, but it may be due to an enlarged thymus gland, atalectasis, pulmonary apoplexy, diaphragmatic hernia, cerebral hemorrhage, or sepsis. Atalectasis is the most common, and in his experience cerebral hemorrhage and sepsis come next. There are many forms of congenital heart disease besides patent foramen ovale. There is no benefit from placing the baby on the right side. Phimosis is overdone. In most instances the breaking up of preputial adhesions with a probe and retraction meet every need. Obstetricians do not as a rule appreciate the importance of breast feeding. Almost the only contraindications are tuberculosis or some serious disease of the mother. Breast feeding should not be given up unless continued trial shows that the milk cannot be regulated so as to agree with the baby, or the mother's health is being seriously impaired. In making artificial mixtures, the obstetrician does not understand what creams are. The author believes them to be any milk containing more than four percent of fat. Top-cream after the bottle has stood eight hours may contain 16 percent of fat. Consequently the amount of this ingredient in the baby's food is often in great excess. Premature infants are often given too strong mixtures and overfed. Jaundice may come from sepsis, but here we generally have in addition fever, a bad general condition, and hemorrhages. Calomel is not needed for the simple icterus neonatorum. Sepsis is often overlooked and is very common. It may cause cyanosis, jaundice, hemorrhage, hemorrhagic disease of the newborn, digestive disturbances, bronchitis and broncho-pneumonia. It is due in every instance to germ-entrance. Dirty water often enters the mouth during the bath and when the mouth is cleaned with the finger. Autointoxication from absorption of bowel contents is not uncommon. The bowels should be cleared out with castor oil. Every newborn

child should be most carefully examined for the presence or absence of congenital malformations. Cleft palate may occur without harelip.

LOSS OF APPETITE IN CHILDREN.—(*J. A. M. A.*, Dec. 5, 1909). I. M. SNOW calls attention to a group of symptoms observed in children from two to ten years of age, characterized by capricious and lacking appetite in spite of the most correct regimen and attractive food; irritability, lack of nerve, irregular and unrefreshing sleep, and general deterioration in physique. All this may be the case in spite of tonic, fresh air treatment, and sometimes rapid growth without corresponding increase in weight. The condition is to be distinguished from the anorexia nervosa of Gull, which is a type of hysteria with loss of weight without organic lesion and with delusions and marked hysterical manifestations, which are lacking in these cases. Snow insists on a thorough examination in these cases excluding all organic diseases, and finds the efficient treatment only in putting the child to bed and keeping him there for two weeks with plenty of ventilation and fresh air. The body should be sponged off and well rubbed morning and evening and a suitable nutritious diet, well cooked and attractive, may be given without any special restrictions. The rest treatment should be continued until there is considerable gain in weight, a good appetite and natural sleep for ten or twelve days. These being satisfactory, the child is dressed and given an hour's perfect freedom, out of doors if preferred, and if improvement continues this may be increased by an hour each day until the child has six hours in the middle of the day, and, if still delicate or not quite normal, the short day should be continued for several months. At this time, change of air, country or seashore, with restrictions as to violent exercise, will be of service. After from two to four months, restraint is no longer needed, the child can live its normal life. Of course there are borderline cases in which all the details are not required, but if the condition has lasted for months any short or partial rest-cure is a waste of time; the invalidism will recur and the result probably will be an impairment of health that may be felt in after life.

TREATING THE RHEUMATIC CHILD.—Kerr, in the *American Journal of Pediatrics*, enumerates the indications as follows:

(a) To combat the inflammation in the joints. This may be done by the stimulation of the cutaneous circulation. Along this line the hot-blanket pack and hot fomentations are used until the temperature falls or the acute pain is relieved.

(b) To limit or prevent an extension to the heart, lungs, pleura, or meninges. Here is the place for elimination. Skin, kidneys and bowel must be kept active. Warm baths followed by cool sponging or friction over the parts of the body free from inflammation will be useful. Hot enemas are often very efficient. As a rule the author has given them once every twelve hours for two or three days. Here again it is necessary to lay special emphasis upon the value of absolute rest. Free water-drinking should be encouraged.

The clinical indications are:

(a) Hyperpyrexia.—This may be treated by the use of an ice-cap and sponging with tepid water, accompanied by mild friction and no drying. Unless the temperature rises above 102 degrees F., it may be disregarded as an indication for direct treatment.

(b) Pain in the Joints.—Rest and the local applications already mentioned will relieve, and particularly if the joint be smeared with some oil twice daily.

(c) To Limit Damage to Joints.—Gentle or simple flexion of the joints just as soon as the temperature has subsided will limit permanent damage.

(d) Tachycardia.—When this occurs there should be applied over the heart a cold compress for at least fifteen minutes of every hour, or an ice-bag may be used in its stead. Small doses of the bromides are grateful as the child is usually in a very nervous state.

(e) Profuse Perspiration.—If this occurs during the first few days it should not be checked, but the little one should be wiped dry as frequently as it occurs. Occurring later in the disease, it may be gradually stopped by a bath with a tepid temperature at first, which is gradually reduced to about 85 degrees F. This may be used twice daily.

(f) Anemia and General Debility.—When convalescence is once fairly established the use of tonics is indicated. Every rheumatic child suffers more or less from blood impoverishment. In the very acute cases anemia is so severe and sudden that the demand for treatment is urgent. The author is quite in favor of an early though gradual return to the usual diet, and it is his habit to proceed as follows: After the restrictions as indicated previously, when the temperature touches normal, he begins the use of legumes, undextrinized cereals, and some of the dried vegetables, as peas, beans, and lentils. Baked potatoes and eggs are allowed the next day, and also fish. Within ten days after the subsidence of an acute attack the diet is liberal and meat is allowed once daily. He believes that it is most important that we give to the convalescent child a diet which is as nutritious as possible, and no doubt much of our prolonged convalescence was formerly due to the restriction of the diet for weeks after an attack. Sugar seems to be the most harmful article, and its use is always restricted irrespective of the prevailing condition.—Medical Standard.

SUCCESSFUL SURGICAL TREATMENT OF TETANUS.—A. Mazza (*Bollettino delle Cliniche*, May, p. 220).—On Feb. 21 a boy, aged 9, complained of painful respiration and difficulty in opening the mouth. On the 23rd his medical attendant found facial contraction, trismus, photophobia, painful clonic spasms of the body, increasing on the least touch. The pulse was 120 to 140 and the temperature 101.3°. On the 24th there were strong contractions of the muscles of the neck, back, abdomen, arms, and legs, opisthotonus, and slight albuminuria. On the 25th he was worse and rectal feeding was necessary. On looking for the cause of the illness a little wound was found on the ball of the left great toe covered with mud. The father then remembered that the boy had complained of pain in the toe 15 days before. The wound was opened and all the surrounding tissue was freely removed and hot 3 per cent. carbolic wet dressing were applied. After 3 days muscular relaxation began and recovery followed.

THE VALUE OF THE INUNCTION METHOD OF ADMINISTERING DRUGS TO CHILDREN.—Rachford insists that this mode of treatment is more efficacious in children than in adults because of the following reasons: 1. In infants the surface of the skin in proportion to the body weight is four times greater than in adults, the increased blood and lymph area favoring absorption with reappearance in the urine, fæces, bronchial mucus, etc. 2. In infants the vasomotor mechanism is much more responsive to reflex stimuli than in adults, the capillary circulation being made much more active by the application of heat and friction. 3. All lymphatic structures in the child are the more active than in the adult, and functionally more important. Medicines easily pass into the lymphatic circulation. 4. Nutritional problems in the treatment of disease in children are relatively more important, hence the stomach and intestines should be reserved for food if possible. 5. Diseases which are accessible by inunction are more common and more severe in children than in adults. 6. Experiments prove that medicines may be introduced into the circulating media of the body more readily in infants and young children than in adults.—*Am. Jour. Med. Sciences.*

LEAD POISONING IN CHILDHOOD.—(*British Med. Jour.* April 1909). A. J. Turner, who practices in Queensland, notes the fact that lead poisoning is endemic in his territory, and follows Gibson in attributing it to the lead paint of the buildings in that locality. Exposed to the hot sun of summer, the paint rapidly withers and becomes reduced to a powdery condition. This is particularly noticeable on veranda railings. These verandas are favorite playing places for the children whose moist hands become covered with the poison as they clasp the railings. Thence it gets to the mouth, especially in children who suck their fingers or bite their nails. This explains why the malady is common in town children but not in the country where the buildings are rarely painted, why it is more common in summer, and why it frequently picks out only one child in a family, the victim being the finger-sucker or nail-biter. The author does not deny, of

course, the occurrence of cases from other sources. He recommends that other substances than lead should be used in painting places children use as playgrounds. The bad habits in the children as referred to must be corrected. It is useless to remove a child to the hospital and then after it is cured send it back to bad surroundings. Lead paint is dangerous only when it is fresh and sticky or dry and powdery. In regard to breaking up the habit of biting the nails, the author says that the best way is to put straight splints over the elbows. This may seem harsh treatment, but milder measures generally fail.

THE MODE OF INFECTION OF EPIDEMIC CEREBROSPINAL MENINGITIS.—As the ever growing and ever more favorable reports continue to appear, not only from all parts of this country, but from Great Britain and France as well, demonstrating the value of the serum treatment of epidemic cerebrospinal meningitis, one is tempted to believe that this disease has at last been conquered. Nevertheless, in spite of justifiable enthusiasm, it must be remembered that an infectious disease, with a mortality of over twenty-five per cent., is a matter of serious import, even if the mortality has been reduced in a few years from eighty per cent., and complacent satisfaction over what has been done should not be allowed to interfere with further efforts to conquer the disease. The work of Flexner and Jobling has been of great value, and these investigators have accomplished what they attempted, the discovery of a curative serum. But with full appreciation of their success, no remedy, however specific it may be, can ever stamp out a contagious disease, especially one so acute and rapid in its course as epidemic cerebrospinal meningitis. Patients have infected others and often have died before the serum could be administered.

The only sure method of controlling any infectious disease is the development of an effective system of prophylaxis. In order to accomplish this, though a knowledge of the cause of the disease is an aid, it is not so necessary as a thorough acquaintance with its mode of transmission, a fact well illus-

trated in the case of yellow fever. In cerebrospinal meningitis the infecting organism described by Weichselbaum in 1887, and associated with the epidemic form of the disease by Jaeger in 1895, has been carefully studied and is an easily recognized germ. For years, however, its mode of transmission from man to man has been a mystery. That much has been done in recent years on this subject is shown by the voluminous report of Elser and Huntoon, in the June number of the *Journal of Medical Research*. In speaking of the contagiousness of the disease, they state their belief that it is carried by direct transmission only and cite the extreme vulnerability of the specific micrococcus as a reason for this opinion. The organism, while growing fairly well if properly cultivated, dies in a few hours if allowed to dry, a fact which makes transmission by dust unlikely. The theory of contagion by micrococcus "carriers" is strongly emphasized, as in the recent New York epidemic, the specific organism was found in the nose and throat not only in the patients, but also in a large proportion of those who had come in contact with them, although they themselves remained quite well. These persons were probably not susceptible to the disease but were able to convey it to those who were. The contagion takes place through the respiratory tract, and thence the organisms find their way to the meninges through the blood. It is extremely difficult to remove the micrococci from the nose and throat of the "carriers," and in spite of rigid local treatment, the organisms remain for long periods. In the acutely ill they are found in the throat early in the disease, but usually disappear after from five to ten days. Such are the facts elicited by this careful research regarding the mode of contagion of epidemic cerebrospinal meningitis, but the authors offer no suggestions as to prophylaxis. This was not their problem. It now remains for the sanitarians to apply these facts to hygienic and social conditions and to devise practical means for protection against the disease.—*Medical Record*, July 1909.

DIAGNOSIS AND INTERNAL TREATMENT OF INFANTILE HYPERTROPHIC PYLORIC STENOSIS (*Erkennung und interne Behandlung der hypertrophischen Pylorusstenose der Säuglinge*). Ibrahim. *Therapeutische Monatsschrift*, 1909.—Contrasting with the operative treatment of the condition and its associated high mortality, the experience of Ibrahim with internal treatment is of great interest. The writer finds that 83 per cent. of his cases were cured, and Heubner reports 90.5 per cent. cures. The disease occurs in the first four weeks of life. Visible gastric peristalsis, frequent projectile vomiting, are characteristic symptoms; a palpable tumor at the situation of the pylorus is pathognomonic. Daily gastric lavage and cataplasms on the abdomen relieve stagnation of food and pylorospasm. Most important is the consideration of the mother's milk. Defects must be corrected and, if necessary, breast milk must be replaced by food mixtures poor in fats, malzsuppe, etc. If, after minute attention to diet, vomiting continues, rectal feeding may be practised for a short time. Then a strict régime should be instituted, in which mother's milk is added very slowly to the diet.

TRACHEBRONCHIAL ADENOPATHIES IN THEIR RELATION TO CHRONIC PULMONARY TUBERCULOSIS IN CHILDREN.—Charles Leroux shows that the frequency of enlargement of the bronchial glands is great in nursing infants and young children, while in children from twelve to fifteen years of age tuberculosis of the pulmonary apex is more frequent. The author says that in nearly all cases of enlargement of the bronchial glands a diagnosis is possible if looked for in the right way. Radioscopy is of great value in recognizing these glandular enlargements. The physical signs are rough respiration at the apex of the lung without increased vibration of bronchophony. As soon as bronchophony or increased vibration can be recognized there is probably involvement of the apex. The source of the tuberculosis is really from the intestine. It arrives much more frequently by the lymphatics from the nasopharynx or the skin reaching the cervical or subclavicular glands. Or it may come from a pleurisy or pneu-

monia that has left a good soil for the development of the germs. This is one of the most curable forms of tuberculosis although if uncured it may end in pulmonary meningeal or peripheral tuberculosis. It is necessary to remove these children from their unhygienic surroundings and place them in the country or at the seaside for a considerable period, since a short sojourn does not give a permanent cure.

OPEN AIR SCHOOLS.—The London County Council (*Jour. A. M. A.*) is extending the scheme of open-air education which they introduced about a year ago for the benefit of delicate children. The first open-air school was conducted in Bostallwood, Plumstead, from July 22 to October 19, last year, as an experiment and proved a marked success. While this school administered to the educational and hygienic requirements of 49 boys and 64 girls for a period of three months, it is now proposed to run for a period of five months three such schools, each capable of accommodating 75 children. The children will be divided into three classes of 25 each. The staff will consist of one head teacher, three assistant teachers, a nurse, a cook, a cook's helper, and a school-keeper. The cost of feeding the children is about 70 cents a head each week. This is paid by the parents when they are able to do so; when they can not, it is paid partially or entirely out of voluntary funds. In last year's experiment, every child was benefited physically and the improvement was greater than could have been anticipated. The children were suffering, in the main, from the debilitating conditions which arise from city life. The commonest ailments were anemia, enlarged cervical glands, adenoids, and hypertrophied tonsils. Children who were admitted suffering from active disease, showed gratifying improvement. Dr. Sears, the medical officer, in his report says: "The general effect of the open-air school life on the children was easily discernible in their improved color and less restrained demeanor. They seemed brighter and more full of spirits at the end of the school day than at their commencement. Their movements were brighter and their intellects were keener as a result of their attendance at the school."

FOOD INTOXICATION IN CHILDREN.—(*Jour. A. M. A.*, July 10, 1909). Ruhräh observes that taking of too much food of all kinds usually causes such attacks as are described by the laity as biliousness. The attacks recur with greater or less frequency, and are characterized by fever, a coated tongue, foul breath, headache, malaise, often drowsiness; there is often vomiting or diarrhœa or both, and the liver may be somewhat enlarged and tender. A brisk purge and limitation of the diet usually are all that is needed. Too much protein causes, as a rule, much the same symptoms. Sometimes some one symptom is especially prominent, as recurring headache, or recurring neuralgia, or attacks of vomiting, or in milder cases periods when the tongue is furred and breath foul without much other disturbance. Too much fat is a frequent cause of trouble, and many children are often intentionally overfed with fat. These are cases of malnutrition in which large quantities of butter, cream, codliver oil, and other fats are given with the idea of fattening the child and restoring its normal condition. The result is that the nutrition is not improved, but is usually made worse. The child is unwell, has a pale, muddy skin, and large dark circles under the eyes; one of the most striking features is a coated tongue and exceedingly fœtid breath. There is gastric disturbance, and vomiting is frequent, and there is often diarrhœa with the passage of undigested fat in the stools. The carbohydrate cases are the commonest of all, owing to the fact that a great many children are given large quantities of starches and sugars, not only at their meals, but between meals in the shape of sweets of various kinds, often of the cheaper varieties of candies. Many children have a very low capacity for utilizing sugar, and some for both sugar and starches. As in the other forms the periodicity of the attacks is the most striking feature. Perhaps the commonest form of the attack is recurrent vomiting, although this may be seen in cases in which protein metabolism is at fault. In some instances the attack consists merely of fever, or a sick headache, while in other cases there are attacks of asthma which sometimes follow indiscretions in diet. Having found out the food factor at fault, an effort should be made to determine about what quantity of

that particular food can be utilized, then to keep the child on a diet well within the limits of its powers of assimilation. In addition to this it is exceedingly important to see that the bowels are regular, and a rather good plan is to use some fairly active purge at least once a week. Outdoor life and plenty of exercise are exceedingly important and many patients are greatly benefited by a sojourn in the country, not at a summer resort, but on a farm where a very active outdoor life may be led without too much restriction in the matter of observing social forms.

THE EFFECT OF DIPHTHERIA ANTITOXINE ON THE TUBERCULOOPSONIC INDEX.—(*Lancet*, June 26, 1909). Banks gives thirty observations and remarks that there is no great variation in the average index before and after the injection of serum. Nevertheless, a definite rise is apparent in the average index two days after injection, and this gains significance from the even distribution over individual readings. The average index is within normal limits, but more than one-third of the indices are below 0.90, only six are above unity, while five are below 0.80. Arranging these according to the week in which taken, one-half fall in the fourth and fifth weeks, giving an average of 0.86, and those during the sixth and seventh weeks 0.96. The other factors—age and dosage—seem to have little influence. As regards the former, the average index of those up to and including four years is about equal to the average of those between four and seven years and also to the total average. In the matter of dosage again, the average of cases receiving from 15,000 to 60,000 units of antitoxine is practically the same as that of those who got only from 6,000 to 12,000. He concludes that in healthy subjects the effect of diphtheria antitoxine on the tubercle index is small, and it is quite possible that the larger variations are due to some hidden tuberculous lesion. But two points seem to emerge from these observations. Firstly, that there is in the majority of cases a definite rise in the tuberculoopsonic power shortly after the injection of antitoxine; and secondly, that during

some few weeks after this a somewhat low index to the tubercle bacillus is the rule. Also, these effects are independent of the quantity of antitoxine administered and probably of the age of the patient.—(*N. Y. Med. Jour.*, July, 1909).

SERUM TREATMENT OF EPIDEMIC MENINGITIS.—(*Munchener Med. Woch.*) Bruno Leick reports his results in treating cerebrospinal meningitis with the Kolle-Wassermann serum. In sixty-two cases treated without serum or with the serum subcutaneously twenty recovered, a mortality of 67.7 per cent. The cases treated with the serum were diagnosed bacteriologically with the exception of three in whom the organisms could not be found. Of the thirty-four cases treated with the serum, eleven died, a mortality of 32.4 per cent. Of these five were moribund when treated. Disconsidering these there were twenty-nine cases with six deaths, a mortality of 20.7 per cent. In most of the recovery cases the recovery was complete. Once there was deafness; once partial deafness. One nine-year-old boy had a partial hemiplegia, and one of four and a half years was left mentally deficient. The author concludes that the serum is of great value, that the mortality was reduced from 67.7 per cent. to 20.7 per cent., and that the serum is without danger.

WORK OF INFANTS' WELFARE COMMITTEE OF CHICAGO.—The plan of campaign of the Infants' Welfare Committee of Chicago has been determined upon, and as outlined in the Bulletin of the city Health Department will be as follows: (1) The United Charities Association will maintain at the various active centers a force of from eight to ten nurses, who will make a personal investigation of the conditions obtaining in the neighborhood where the death rate from diarrheal diseases among infants was high during the months of July, August, and September of last year. (2) The nurses from the Tuberculosis Institute during their daily work will take cognizance of any cases of the

same kind and will report these to the United Charities Association. (3) The Department of Health contributes to this work by the appointment of ten physicians who will be assigned for three hours each day to the various stations of the Milk Commission of Chicago, the purpose being to examine children coming to those places for milk. They will advise as to proper feeding, dressing, treatment, and general care of the children. (4) At two meetings held recently, at which most of the officers of the branch divisions of the Chicago Medical Society were present or were represented, it was decided unanimously that the Chicago Medical Society through its branches should cooperate with the Infants' Welfare Committee in furnishing to the indigent and deserving poor the necessary medical care and treatment, physicians to be furnished and appointed by the different branches for this purpose. The officers of the Chicago Homeopathic Medical Society, the Chicago Eclectic Society, and the Physio-Medical Society are to be asked to cooperate in a like manner. (5) A staff of physicians has also volunteered to appear at various places at such times as may be necessary to instruct parents and nurses in the proper care and feeding of infants. (6) All dispensaries, hospitals, nurseries, crèches, and children's open-air sanatoriums in the city of Chicago have been asked to join in this movement, and practically all of them have agreed to do so. With these united agencies working under an organized plan there is little doubt that the usual mortality among children from gastrointestinal diseases will be materially reduced.—(*N. Y. Med. Record*).

FIBRO-SARCOMA OF VAGINA IN INFANCY.—Schiller (*Monats. f. Geb. u. Gyn.*, April, 1909) reports an instance of a solid tumor of the vagina which developed in a child two and a half years old. As usual with new growths in that canal in infancy, it proved to be highly malignant. It sprang from the posterior vaginal wall, and small racemose polypoid growths were found attached to the free border of the hymen. The tumor recurred after removal, and then was once more excised; later on the

cautery was applied to the seat of operation, but, on account of the narrowness of the infantile vagina, this procedure was difficult. Another growth was developing in the anterior wall, and a third on the posterior wall. The child was still robust, and Schiller proposed to dissect away both growths from the vagina, and should that prove impossible or clearly insufficient, he would take away the entire genital tract by a Wertheim's operation. Radical measures now freely practised for malignant disease of the uterus seem indicated for these equally or more malignant new growths lower down in the genital tract. The tumor in Schiller's case was a fibro-sarcoma.

DIPHTHERIA ORIGINATING IN UNSEEN PARTS.—M. Adrand (*Annales med. et chir. infantiles*, June, 1909), says that not infrequently diphtheria arises in those parts of the air passages which are not often examined. This type of the disease is known as crypto-diphtheria. The parts affected by the membrane may be the nasal passages, the larynx, the oesophagus, or the bronchial tubes. The endoscope should be used. The chief signs suggestive of diphtheria in any of these parts are: (a) Extreme fatigue coming on rapidly without apparent cause; (b) rapid pulse; (c) considerable enlargement of glands, with or without fever; (d) rapid breathing or dyspnoea without obvious cause. These cases demand special treatment, and it should be more energetic to make up for the loss of time in arriving at a diagnosis. In this way, in spite of an unfavorable prognosis, the general results of a number of these cases may not be much less favorable than others. The author relates six cases to support his view. The following may be cited as an example: A woman, aged 27, for two days felt very tired; rapidly got worse, with dysphagia, due to enlarged glands in the neck; temperature, 37.8° C. She took to bed, and, when seen, looked ill, very pale; neck swollen by inflamed glands below and above the sterno-mastoid; pulse 120. In answer to questions she only complained of a slight cold in the head. The patient had large tonsils, and, in the

absence of other signs, sinusitis might have been expected to exist; hence an examination was made with the mirror. After an application of cocaine with adrenalin a little suspicious white mass was discovered at the lower part of the right tonsil. That evening 20 c. cm. of serum was injected, although the further examination of the fauces was negative. Next day a beautiful culture of Loeffler's bacillus was made. Each day a large amount of membrane formed in the nose, pharynx, and bronchi. In the course of ten days 150 c. cm. of serum was injected. Membranes also developed on the conjunctivæ and on the nasal excoriations. There subsequently followed paralysis of the face, eyes, oesophagus, and neck; also of the four limbs and trunk. The author urges that a fresh dose of 10 c. cm. of serum should be given each time fresh paralysis appears.

BRONCHIECTASIS IN YOUNG CHILDREN.—Z. Capuzzo (*Il Morgagni*, Milan, 1908, L. p. 789) gives details of ten cases of bronchiectasis in children aged from 1½ to 6, the diagnosis being confirmed *post mortem* in four of them, aged 1½, 2, 4, and 5. The condition is most often secondary to acute inflammatory process, usually broncho-pneumonia; *post mortem* almost complete destruction of the elastic and muscular tissue in the walls of the affected bronchi is found, with dilatation of the tubes and destruction of the lung tissue in their immediate vicinity. Less often the bronchiectasis may be secondary to pneumonia, bronchitis, tuberculosis, syphilis, or pleurisy; but it is not a common event in any of these conditions. Occasionally it follows the inhalation of a foreign body, and lesions of the vagus and sympathetic have been given as the cause of bronchiectasis in two children by French authors. The dilatation of the tubes is a direct consequence of their loss of muscular and elastic tissue, the weakened walls yielding to the inspiratory negative pressure in the lungs. In Capuzzo's ten cases the left side was affected in five, the right in three, both sides in two; cylindrical dilatation was found in the medium sized and small tubes, and this is the commonest form of ectasis to be found in the bronchi of children.

The chief symptom is paroxysmal cough with the production of abundant sputum. The sputum settles into three layers when stood in a conical glass, and it was fetid in seven of the cases. Haemoptysis occurred in six of the patients. It may often happen, however, that the symptoms point to nothing more than chronic bronchitis. The pulmonary physical signs in children are often ambiguous and vary very widely with the position, size, and contents of the bronchiectatic cavities. Clubbing of the finger tips was present in seven of the ten children. The course and duration of the disease are very variable; four of Capuzzo's ten patients died of acute bronchopneumonia; one had a pyopneumothorax, and recovered without operation in a month. The surgical treatment of bronchiectasis, often advocated, has been almost uniformly disappointing, and is applicable only to a few cases.

PIRQUET'S TUBERCULIN TEST IN INFANTS AND THEIR MOTHERS.—Poten and Griemert find that the divergent results which various observers have obtained with Calmette's and Pirquet's new tuberculin tests are explained partly by the fact that different strength solutions of tuberculin were used by different investigators and partly by the fact that the class of cases in which the tests were applied varied considerably (*Deut. med. Woch.*, June 3rd, 1909). It appears, however, to be generally accepted that every tuberculous person reacts to these tests, provided: (1) that the disease is not too severe or far advanced; (2) that the patient is not under influence of large quantities of tuberculin; (3) that the patient has not got a measles rash; and (4) that the patient has not a very low reaction capability. In the last-named case the test usually proves positive when it is repeated. On the other hand, it can be shown that persons who harbor a latent tuberculous focus may fail to react, although the lesion can be recognized as tuberculous *post mortem*. In order to clear up the question still further the authors sought to test Pirquet's reaction on individuals who are certainly not affected

with tuberculosis. The only available individuals of this kind are newborn babies. Tuberculosis may, it is true, be transmitted from mother to child, but in this case the former must be suffering from a disseminated form of the disease. In any case congenital tuberculosis has been proved to be of extreme rarity. They have therefore applied the test in fifty-three infants of ages varying between 1 and 14 days and 4 in the third and fourth weeks of life. The method used was that described by Petruschky. The arm is scratched with a needle in the form of two small crosses without injuring the cutis. One of the two crosses is moistened with glycerine and the other with undiluted old tuberculin. Not a single infant showed a trace of reaction; twenty of the fifty-seven infants were tested again after an interval of at least one week, but the result remained negative. The mothers of the infants were also tested. Two of them, both young women from the country, failed to react, while all the rest gave a positive reaction. This appears to show that a perfectly healthy person—that is, free from all traces of tuberculosis—does not react to Pirquet's test. The test is, however, not of practical importance in the diagnosis of tuberculosis, since a positive reaction can be caused by an absolutely unimportant focus, which is not and will not become active. But the extreme susceptibility to tuberculin may gain practical importance. If the test is applied to young children, the earliest infections may be recognized. The authors believe that the possibility of attacking the newly-grafted disease is greater than that of attacking the disease after it has gained a firmer hold of the organism.

CALCIUM HYPOPHOSPHITE IN THE TREATMENT OF EPILEPSY.
—M. CICARELLI (*Il Policlinico*, 5 and 6, 1909; and *La Clinique*, July 9, 1909), after noting the good results obtained by several Italian physicians in the treatment of epilepsy with lime salts, conceived the idea of employing calcium hypophosphite, the phosphorus contained in it being supposed to have a good effect as a reconstituent for enfeebled epileptic subjects. Calcium hypophosphite was given in doses of from ten to fifteen grains

in cachets three times daily, and excellent results were observed with twenty-five patients. The author considers the salts of calcium to be preferable to the alkali bromides, as bromidism is avoided, and the general condition of the patient is improved and a more cheerful mental feeling induced. The bromide treatment may be continued at intervals, alternating it with the calcium hypophosphite, bromide being given for a week or ten days and the calcium salt for a fortnight.

MATERNAL MILK AS AN IMMUNIZING AGENT TO THE NURSING.—The prevailing custom of considering only the nutritional values of milk and other forms of food used in the artificial feeding of infants is partly responsible for the great mortality that prevails among them, especially during the first year. The protection of the infant against infection depending in no small degree upon bactericidal and antitoxic substances physiologically supplied to it in the maternal milk, the protective properties of any artificial food should receive attention as well as its nutritional values. All phases of the problem indicate that, of the various modes of feeding, direct maternal nursing affords the greatest protection to the infant; it follows, therefore, that all should be done in our power to promote the abandonment of artificial feeding, and thus reduce greatly the mortality among infants. L. T. de M. Sajous (*University of Pennsylvania Medical Bulletin*, June, 1909).

HERNIOTOMY IN CHILDREN, WITH END RESULTS.—H. C. DEEVER, (*Albany Medical Annals*, June, 1909).—If the hernia be small and the truss easily kept in place, it is feasible to persevere in the use of this apparatus. If there is no cure after a year's trial, operation should be performed.

The truss should only be advised where the mother is intelligent enough to carry out the instructions as to its proper use. Is it advisable to order trusses among the poor where the care of the children and their environments are not so favorable as among the intelligent classes? For too often in such cases the

wearing of the truss offers a false sense of security against accidents, such as strangulation, and the hope that the truss will cure these hernias often proves futile. The expense of the truss must also be considered.

Since the operation has practically no mortality, and since the results are so good, radical operation is justifiable, and this wholly irrespective of age.

In large scrotal hernias I would not advise in any class of patients the use of the truss because the operation is not serious and the results are perfect and permanent.

As to the operation itself, the most important point in the closure of the canal is the separation of the layers so as to get firm union between them in their new relations, and, at the same time, to prevent any tension of the deep sutures. The skin incision should not be prolonged too far outwards towards the scrotum; not more than half an inch below the external abdominal ring. The sac should be completely removed and, if cut properly, its stump disappears from sight by the elasticity of the peritoneum. The only true indication that the limit of the sac has been reached is the end of the thickening of the same.

THE EFFECTS OF THE HEATING OF MILK ON THE HEALTH OF THE INFANT.—J. M. FORTESCUE-BRICKDALE, M. A., M. D., (*British Jour. of Children's Diseases*, March, p. 111).—The heating of milk may produce an effect on the infant's nutrition in two ways: Firstly, it may alter the physico-chemical character of the milk either for better or worse as regards its suitability to the needs of the infant economy, and secondly, it may affect the adventitious bodies existing in milk, namely the microbes and their products. It is with the first of these ways that the present paper is chiefly concerned. The changes may be divided into 3 groups.

1. Obvious changes occur when milk is heated in an open vessel, namely, an alteration in the taste, an alteration in the colour, and the formation of a skin or scum on the surface. The

alteration in the colour and taste is due (in part at least) to the action of heat on the carbohydrate lactose, leading to the formation of small amounts of caramel, and, eventually, traces of formic acid. The characteristic taste is acquired with some suddenness at about 70°C ., and gradually disappears if the milk is well cooled after boiling. The formation of a skin occurs in any emulsion in an albuminous medium. Jamison and Hertz, in 1901, found that it was due to the drying of the caseinogen on the surface of the milk; globules of fat are entangled in the dried protein, and if the temperature is raised above the coagulation point of the lactalbumin this substance is also involved in the formation of the skin. No skin appears if the milk is heated in a closed vessel, and if the air over its surface is kept saturated with water vapour. The net result of this group of changes is not great as regards the value of milk as a food either for infants or adults. At most an infinitesimal quantity of lactose is destroyed and a small amount of protein thrown out of solution.

The second group of changes, which are less obvious and only demonstrable by careful experiment, are far more important. The boiling, by removing carbon dioxide from the milk, renders the calcium salts less soluble, with the result that the coagulation of the caseinogen by rennin is rendered less rapid and complete. Cautley showed that the coagulation by rennet and the precipitation by dilute acids are both adversely affected. The curd is softer and more flocculent and forms more slowly the longer the milk is heated and the higher the temperature is raised. This soft curd might be of advantage to infant digestion, but there are two further points to be considered. Leeds and Davis and also Koplik found that heated milk is less easily coagulated, but that it is also less easily hydrolysed by pepsin and trypsin. Further, Hutchison has shown that the addition of an acid prevents the precipitation of the calcium salts, so that possibly in the stomach a hard, firm curd is formed owing to the action of gastric juice. The heating of milk, especially if prolonged, probably destroys some of the lecithin, and increases the proportion of inorganic to organic phosphorus. The phosphates are also largely precipitated.

Physiological effects of these changes are described by various observers. Rink found that consequent upon the alteration in the proteins the fat globules were less perfectly emulsified and were less easily absorbed. Vasilieff experimenting with young men, Koplik with infants, and Weber with young calves, showed that the nitrogenous constituents of milk were less completely absorbed when the milk had been heated. In older children ($2\frac{1}{2}$ years), however, Bendix found that there was little difference in the absorption of boiled and unboiled milk. Thus, though the evidence is not quite unanimous, on the whole it seems probable that heating does render the absorption of the proteins and fats in milk less complete.

The exact physiological effect of the changes in the phosphorus on boiling is not yet determined. Gagliani has shown that boiling precipitates both organic and inorganic phosphorus, and that the latter is increased at the expense of the former. There is evidence that the organic compounds are more easily and completely absorbed than inorganic phosphates, and their diminution in cows' milk seems to be particularly disadvantageous (like the milk of other animals whose young are born with a fully developed nervous system) it is particularly poor in lecithin bodies. The new-born infant, with its nervous system still very imperfectly developed, requires a milk comparatively rich in organic phosphorus compounds, such as human milk.

The third group of changes is, perhaps, the most important of all. It includes all those changes which are due to the death of the cells contained in milk, and to such alterations in the soluble proteins as deprive them of their "vital properties." Certain enzymes, which are presumably of value to the young animal, are destroyed, as also are such bodies as precipitins and advantageous (like the milk of other animals whose young are course, abolished. Another property of milk which is lost is its so-called "bactericidal action." Coplans showed that the growth of a laboratory strain of *Bacillus coli* was inhibited by new milk for 6 hours absolutely and for a further 18 hours partially, at air temperature. Boiling milk entirely abolishes this phenom-

enon. Rosenau and McCoy consider the action inhibitory rather than bactericidal and showed that it is not solely or mainly due to phagocytosis, as equally well-marked results were obtained from cell-free milk. This property is no doubt important in its relation to the use of milk as an infant food, especially in view of the numerous disturbances caused by the growth of bacteria in the intestinal canal.

Clinical evidence, however, always carries more weight than experimental deductions. There is a growing tendency to condemn the heating of milk intended for infants' food. Finkelstein in Vienna, Daniloff in Russia, and others have recently investigated the question, and have all come to the same conclusion as regards the great superiority of fresh milk. Sill investigated 179 consecutive cases of children carefully fed on pasteurized and sterilized milk, and found signs of rickets or scurvy in 97 per cent. Budin and his followers stand almost alone in advocating the prolonged heating of milk, and even Variot, though he found no cases of scurvy or rickets among 3000 children fed on milk sterilized at 100° C., admits that anæmia and constipation occurred, and that 3 to 4 per cent. of the children could not take the heated milk at all. The late Dr. Ashby said that in suppurative pyelitis in children there was frequently a history of the use of sterilized milk, and Dr. Edmund Cautley has recorded the same opinion. As regards scurvy it appears at any rate certain that some constituent in the milk which is destroyed by heating is an important factor in its prevention. Dr. Coutts has recorded 3 cases of infantile scurvy in which recovery failed to take place on ordinary anti-scorbutic diet as long as the pasteurized milk was continued, but in which rapid improvement occurred as soon as fresh milk was given. But in considering the etiology of scurvy the personal factor must be recognized. The fact that of all children fed on cooked milk only a few develop scurvy shows that a special idiosyncrasy is essential for its production, and that probably others who show none of these symptoms are nevertheless adversely affected by being deprived of those "anti-scorbutic principles," whatever they may be, which are known to exist in fresh milk, and which possibly under such circumstances the infant economy is forced to manufacture for itself.

PEDIATRICS

Vol. XXI

SEPTEMBER, 1909

No. 9

ORIGINAL ARTICLES

AN EPIDEMIC OF ACUTE ANTERIOR POLIO- MYELITIS.

*(The report of personal observations of fifty-three cases with
supplemental report of 11 more recent cases.)*

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All of these reported cases occurred in the Brownsville section of the Borough of Brooklyn, in the City of New York, and were confined to a rather limited area of that section. The population is almost exclusively Hebrew and owing to the reaction following the recent boom the majority are in reduced financial circumstances. Despite this, however, the sanitary condition of the homes is above the average, because most of the buildings are new and therefore have been erected under the more stringent building laws of recent times. There is some overcrowding to

be sure, but I should say that the general conditions are above the average for poor people. The time of occurrence was between Aug. 7 and Sept. 4, 1909.

In recording one's observations in an epidemic of this character it is necessary to state at what period of the disease the patients were first seen.

As a positive diagnosis is practically impossible before the onset of the paralysis, I have recorded only the fifty-three cases observed personally after paralysis was present.

In the presence of the epidemic, I advised many of the physicians of the section to treat with suspicion all cases of indefinite illness occurring in children under the age of five years and particularly if accompanied with a rise in temperature associated with soreness or pain in the muscles of any limb.

Under these circumstances, we attacked the cases vigorously by placing the child in a hot pack until reaction was complete and this was done irrespective of the rise in temperature. Hot water was given very freely at first and enforced even if it caused vomiting. The bowel was thoroughly emptied by a hot enema and a single large dose of castor oil. The hot enema was repeated in twelve hours. The child was placed in bed and prevented from lying upon the back. Ice was applied to the spine. The diet was restricted to fluids and absolute rest was enforced.

Belladonna and ergot were given in full doses.

Nothing is claimed for the efficacy of this line of treatment. We felt, however, that in the presence of the epidemic we were justified in using such means as seemed to offer even a possibility of relief. While the number of cases so treated was small, in no instance was there the further development of symptoms which would lead to any definite diagnosis. Nor were any of these cases followed by paralysis. We may or may not have been treating cases of beginning anterior poliomyelitis—the outline of treatment is given for what it is worth.

The cases were observed by me as follows: On the first day of the paralysis, three; on the second day, four; on the third day, four; on the fifth day, nine; on the sixth day, six; on the

seventh and to the fourteenth day, three; between the fourteenth and twenty-first days, fourteen; after the twenty-first day, ten.

The division by sex was as follows: Males, twenty-four, and females, twenty-nine.

Of males the age at the time of attack was: 6 months, one; 7 months, two; 9 months, four; 13 months, one; 14 months, two; 18 months, two; 19 months, one; 20 months, five; 2 years, four; 2 years, 9 months, one; 3 years, one.

Of the females: 4 months, one; 7 months, two; 8 months, two; 9 months, three; 10 months, two; 1 year, one; 13 months, one; 14 months, two; 18 months, two; 19 months, four; 20 months, two; 22 months, three; 2 years, two; 2 years, 8 months, one; 3 years, 9 months, one.

Summarized without regard to sex, the ages at time of attack were as follows: Before the 6th month, one; 6 to 8 months, seven; 9 months to one year, nine; 1 year to 18 months, seven; 18 months to 2 years, nineteen; 2 years to 3 years, eight; after 3 years, two.

Of the infants under one year of age, all except one was breast-fed. In addition to the breast, most of them had a weak infusion of Russian tea.

Particular care was exercised to elicit the history of symptoms occurring before the onset of the paralysis and in this examination no leading questions were asked. Of the symptoms thus noted the occurrence was as follows:

Fever was said to be present without doubt in fifty instances. In thirteen cases this was confirmed by the thermometer and was always between the limits of 101 Fahr. and 103 Fahr., except in one instance when the temperature was 105.1 Fahr.

According to the histories, the fever did not subside up to the time of the occurrence of the paralysis.

Diarrhea was present in twenty-six instances and was marked in twenty-one of these. There was nothing characteristic about the appearance of the stools or their number.

Cough was noticeable in twenty children.

Vomiting occurred in eighteen instances but was at no time a prominent feature. In fifteen instances it occurred at the

onset of the rise in temperature and was not repeated after the first twelve hours. In three instances, it continued to some extent until the onset of the paralysis. In no case was it ever projectile.

Constipation was noticed in ten children.

Difficulty in deglutition occurred in fifteen children and of this number, four showed evidences of an inflammatory condition in the throat.

Rigidity of the neck muscles occurred in two instances. In one of these, photophobia was present to a mild degree. In both, the pupillary reactions were normal.

In no instance was there any history of a chill, a convulsion or coma. It was the common history that with the onset of fever there was more or less restlessness but no more than would be expected from the rise in temperature.

The effort to determine whether pain was an early feature before the occurrence of paralysis was practically futile. The parents would give a history that the little one fretted and cried most of the time if it was disturbed, but was usually quiet unless disturbed. After the onset of paralysis, pain became more of a feature, as is recorded later on.

In their combination the symptoms chiefly massed themselves as here tabulated: Fever with diarrhea, ten (dysphagia, three); fever, cough and diarrhea, four (dysphagia, one); fever, vomiting, cough and diarrhea, twelve (dysphagia, three); fever alone, four; fever and constipation, seven (dysphagia, one); fever and vomiting, three (dysphagia, two); fever and cough, one; fever, cough, vomiting and constipation, three (dysphagia, one); no symptoms noted, three.

Of the remaining six cases, the symptoms of the onset were masked or combined with those of a definite disease and these were diagnosed as follows: Tonsillitis (dysphagia in all) four; pneumonia (lobar), one; gastro-enteritis, one.

The interval between the occurrence of the first symptoms noted and the occurrence of the paralysis was as follows: Less than one day, six; one day, four; two days, ten; three days,

twelve; four days, six; five days, none; six days, six; seven days, seven; eight days, none; nine days, one; ten days, one.

When at its worst, the distribution of the paralysis was: Right lower extremity, fourteen, males 2, females 12; left lower extremity, six, males 6; both lower extremities, twenty, males 10, females 10; right upper extremity, six, males 4, females 2; left lower extremity, none; both upper extremities, none; all four extremities, two, males 1, females 1, hemiplegic type, (one arm and one leg), two, males 1, females 1; arm and leg (opposite), one, female; deltoid muscle alone, two, females 2.

We observed also one instance in which there was kyphosis and loss of speech; one in which the intercostal muscles were involved and four cases of hernial protrusions of the abdominal wall; these are all noted more fully later.

Transitory loss of sensibility was noted in seven instances. These were the three cases seen upon the first day; three of those seen on the second day and one on the third day. In the three earlier cases it was quite marked but less so in the later four. The tests were made by pricking and also by the application of heat and cold. This loss of sensibility was but for a short time and its disappearance was gradual.

Pain was present in more or less degree in every case. It was elicited by gentle squeezing of the muscle. This sensitiveness was irrespective of the muscles affected and was quite general.

After the first week of the paralysis, the pain was more definitely located in the affected musculature and was even more marked in these than before.

This is the data that I was able to gather from a personal observation of these cases. It is difficult to estimate just how many cases occurred in this epidemic but I have given to the proper authorities the necessary details for the determination of this latter fact. (150 would seem to be a low estimate).

It remains for me to speak briefly of a few of the cases in particular as showing peculiar features.

G. M. Girl, 19 months. Three weeks before first examination was ill with fever, vomiting and diarrhea and four days later

was found to be paralyzed in both lower extremities. At the same time the abdomen seemed to suddenly enlarge and bulge at both sides. The examination made by me showed distinct protusions on both sides of the abdomen but most pronounced upon the left side. There is still a very marked flaccid paralysis of both limbs and without any apparent differences between them.

A most interesting case was that of a female, age 19 months, who was taken ill suddenly with sore throat, slight fever and constipation and on the second day exhibited a paralysis of the muscles of the neck and of the right side of the throat. At the same time the right arm was slightly paralyzed and both lower extremities showed a loss of sensation to pricking, heat and cold but seemed hyperesthetic when the individual muscles were manipulated. The right side of the chest was also involved and when a long strip of cardboard was held at right angles to the sternum, it was readily seen that the left side of the chest was active while the right was immobile. The breathing was almost entirely abdominal. On the third day the lower extremities were paralyzed and death occurred on the fourth day of the illness. Autopsy refused.

A. P. Male, age three years. Was ill for three days with fever which at its onset was accompanied by vomiting and diarrhea. The vomiting ceased in a few hours but the diarrhea persisted. Late on the third day it was discovered that the left upper and lower extremities were paralyzed. There was also a sudden and coincident loss of speech. Kyphosis was quickly developed. As the head appeared large measurements were taken but it was found that the head was 22 inches in circumference while the chest was 22 inches also. An examination several days later shows that the paralysis in the arm is markedly improved, the leg is slightly improved and the kyphosis is more marked. Speech has not been restored.



FIGURE I.

Hernial protrusion of abdominal wall—acute anterior poliomyelitis.

I observed the following cases in which there also was a distinct hernial protrusion of the abdominal wall.

Saml. S. Aged 19 months. Onset was with fever (101) and vomiting which continued for twenty-four hours. The child was constipated and had considerable cough. There was a sudden flaccid paralysis of both lower extremities. That same day the protrusion was noted as shown in Figure I. Upon further examination two weeks later, the paralysis in the legs had markedly improved but the abdominal protrusion persisted. The photograph was taken at the second examination.

Louis P. 18 months old. Was suddenly ill with slight fever and vomiting. On the second day a cough developed and also slight diarrhea. On the third day there was sudden flaccid paralysis of the left lower extremity and coincident with it a well marked hernial protrusion on the left side of the abdomen. Ten days after first examination this still persisted although the improvement in the leg is quite advanced.

A. K. Girl, age 19 months. Onset with vomiting, fever and later constipation. Sudden flaccid paralysis of both lower extremities. Next day, protrusion of right abdominal wall noted. Two weeks later, the right leg is much improved, while the left is only slightly so and the protrusion in the abdomen persists as marked as before.

While acknowledging my indebtedness to all with whom I saw cases, I am particularly obligated to Drs. Dattlebaum, Lampert, Orginz, Rabinowitz, Stoloff, Wolff, for their assistance and courtesy.

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SUPPLEMENTAL REPORT.

Since making the foregoing report of 53 cases, I have had the opportunity of studying several others in the remote sections of the borough (Williamsburgh, Bath Beach, Bensonhurst, South Brooklyn, Greenpoint). The cases were seen in consultation with Drs. Blackmer, Bradner, Aronson, Hodges, Norman, Rabinowitz, Lampert.

There were 11 cases, six males and five females.

Ages of the males were 8 months, one; 9 months, two; 10 months, one; 2 yrs. 1 month, one; 3 yrs. 2 months, one.

Of the females, 10 months, one; 1 year, one; 1 yr. 2 months, one, 6 yrs. 10 months, one; 12 yrs. 1 month, one.

Paralysis was as follows:

Left lower extremity, three; both lower extremities, six; (one with involvement of neck and one with chest and throat) crossed paralysis, (left leg and right arm) one; general paralysis, one.

Symptoms of onset were, fever in 11, vomiting in 6, diarrhea in 4, constipation in 6, cough in 2, sore throat in 2, headache in three, (intense in 2).

There were two deaths, a girl of 12 years 1 month in which the paralysis was general (autopsied by Dr. Flexner) and a boy of 3 yrs. and 2 months in whom there was a complete intercostal paralysis and in which autopsy was refused.

INHERITED SYPHILIS.

By B. F. Ochs, M. D.

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The older writers claimed that there were two distinct forms of *herido syphilis*: (1) the *congenital*; (2) the *hereditary*. Then this class was subdivided into (a) *herido* and (b) *hereditaria tarda*.

By *congenital syphilis* was meant that the child was born with unmistakable symptoms of the disease, while in *herido-syphilis* the child was born apparently well, and developed the symptoms at a period of about the third month, and in *hereditary-tarda* where the symptoms of the disease come on very late in life, sometimes as late as in the 20th year. This subdivision is not good, it is best to put all under the one heading of *inherited syphilis*, as some of the earlier symptoms, as the snuffles, the deafness, etc., may have been overlooked.

Those affected with syphilis at birth (the *congenital* kind), present a typical picture. The child is a weak, puny, undersized infant, with an aged looking face, large eyes, and a semi-idiotic expression. The skin, especially of the face, is hard, dry and wrinkled; the nails of the fingers are not well developed, and the hair of the head is short and scanty. Many of these children have a somewhat mummified and dried-up appearance. These children do not take on any flesh and die of marasmus. Others are born, with their bodies covered with, from lentil sized to hazel nut sized bullae, which rupture easily and discharge a yellowish purulent serum. This is the pemphigus syphiliticus neonatorum, and differs from true pemphigus, in that these cases have the same lesions in the palms of the hand and in the soles of the feet. This form of pemphigus is always fatal, the child dying in from three to five days.

Of the *herido* class of cases, the child is born, apparently well, and gains flesh and strength. About the third month they commonly develop the snuffles, a discharge from the nose, which is due to the swelling of the mucous membrane, which at first is slight, but later blocks up the nostrils and discharges blood and pus. This dries up and occludes the nostrils, so that there is difficulty in breathing. At the same time, an erythema appears at the mucous orifices and due to the drying of the secretions

from this erythematous condition the skin cracks, and forms rhagades. This is seen particularly about the mouth and anus, and is also in the folds of the neck, around the umbilicus, the axillae and back of the knee, and in the groin. Wherever the skin overlaps, the secretion keeps the parts very moist and the superficial epithelium is macerated, and we get the denuded areas called the mucous plaques of the skin. Close observation will show that at the edges of, or within the erythematous patch, there are small flat papules, usually in groups, and at the same time deep seated papules in the palms of the hands and in the soles of the feet. These are entirely characteristic of syphilis. The mucous membranes are apt to be affected, just as in acquired lues, namely with mucous patches. Another class of children only at first develop the snuffles, but later an eruption appears which may be of the macular type, or a grouped papular eruption, of a coppery-brown color, or even may be of the pustular form. The prognosis in these forms of syphilis is good especially if the cases are treated early in the disease. Early symptoms of lues are seen in other organs of the body, thus in the eye where we get the kerito-iritis; in the ear the deafness due to the disease of the labyrinth, in the bones as the dactylitic syphilitica, the saddle-nose, sabre legs, etc., and in the teeth where due to the arrest of development we get the peculiarly peg-shaped and notched teeth, called the *Hutchinsonian* teeth. In syphilitic children, the deciduous teeth are small, friable, irregular and dirty looking and crumble off close to the gums. In the permanent teeth, the two central incisors of the upper jaw are either notched at their cutting edges in a crescentic shape, or may be bevelled away at their cutting edges, and are apt besides to have a furrowed appearance, as if a part of the enamel was gouged out. The lower incisor teeth are serrated like the teeth of a saw, discolored or black, and crumble down to the gums.

Typical cases of herido-syphilis show four cardinal signs:

- (1) The peculiar striae around the corners of the mouth.
- (2) The kerito-iritis or interstitial keratitis.
- (3) The *Hutchinsonian* teeth.
- (4) The deafness.

and coupled with any of these signs the history of snuffles. It is however not necessary that all these signs be present to make the diagnosis, as any one of the above signs together with the snuffles is sufficient.

PUBLISHERS' ANNOUNCEMENTS.

THERAPEUTIC USES OF IODIPIN.—E. Lustwerk prefers the subcutaneous administration of iodipin. The following cases were treated by him: 1. Gonorrhoeic sciatica. The sciatic nerve was tender and palpable after several attacks of gonorrhea. After five injections, each of 10 Cc. of 25-per-cent. iodipin, there was much improvement. The patient was cured after ten more injections. 2. Syphilitic optic neuritis. 450 Cc. of iodipin, given within three months (15 Cc. every other day) brought about a marked subjective and objective improvement, and also favorably affected an existing myocarditis. 3. Tabes dorsalis. The most pronounced symptoms were the lancinating pains. After 25 intramuscular injections of 15 Cc. each, the pains, hyperesthesia, and ataxia had disappeared, so that the patient could again take up his vocation. 4. Struma. Syrup of iron iodide and applications of iodine were ineffectual, but 50 Cc. of iodipin, injected in 5 Cc. doses every day, led to complete disappearance of the tumor. 5. Acute, traumatic gonitis, in a patient sixty years old, was cured by 2 Cc. injected every other day near the knee for 20 doses. 6. Empyema. The suppuration could be checked by evacuation of the pus, but a cure was not established until several doses (15-20 Cc.) of 25-per-cent. iodipin had been injected. 7. Asthma bronchiale. The usual mixture relieved the attacks, but iodipin given in tablet form seems to have cured the disease. 8. Arterio-sclerosis. All symptoms improved after 10 Cc. of iodipin had been injected every other day for one and one-half months. 9. Transverse dorsal myelitis. 20 Cc. of iodipin, injected daily for six weeks, and every other day for two more weeks, completely cured the patient.—*Deutsch. med. Zeit.*, 1909, No. 42.

FIBROLYSIN IN URETHRAL STRICTURES.—In ten cases of urethral stricture, the majority almost impermeable, Dr. Trautwein has obtained most satisfactory results from fibrolysin injections, when used in conjunction with the customary methods of sounding. In almost every instance the size of the sound

could be rapidly increased, owing to the pronounced softening of the scar tissue. The contents of an original vial were injected intravenously, and, as a rule, five injections were sufficient. With the endoscope it could be seen that the scar tissue became more opalescent, owing to serous inhibition.—*Dermatolog., Centralbl.*, xii, No. 8.

ACTION OF DIGIPURATUM ON THE CIRCULATORY SYSTEM.—J. Szinnyi tested the action of digipuratum thoroughly in 20 cases, and concludes that it is an absolutely reliable preparation of digitalis. It is indicated in every decompensation, when there is yet time for oral medication, owing to the fact that it is uniform in action and contains both digitalin and digitoxin, but is free from digitonin.

In 11 cases where digipuratum was used, free diuresis set in on the second day; in four cases the amount of fluid excreted exceeded that ingested on the first day. In three cases the free flow of urine began on the third day, in two cases on the fourth day, and in one case each on the fifth, sixth, and seventh day.

By carefully comparing the pulse frequency with the diuresis, it may be noticed that occasionally the pulse will slow down as early as the second or third day, whereas the amount of urine, though larger than on the preceding day, will not yet correspond to the amount of fluid introduced.

It seems that this observation will give valuable information as to the condition of the heart-muscle. The slowing of the pulse and the onset of a free flow of urine are simultaneous if the heart-muscle is still in good condition, while with a weak myocardium the frequency of the pulse will diminish first. There seems to be a definite relationship between the condition of the myocardium and the appearance of a free flow.—*Orvosi Hetilap*, 1909, Nos. 17-22.

FIBROLYSIN IN DEAFNESS.—W. M. Mollison reports five cases of deafness treated by means of injections of fibrolysin. Of these, two distinctly benefited; one, a girl of fifteen, improved for a while, but ceased attending because the injections gave some pain; one was apparently unaffected, though the patient

said she heard better; and the fifth case, though quite recent, seemed to be improving slightly and was still under treatment. One ampoule (2.3 Cc.) was injected into the gluteal region three times a week, the skin being first frozen with a spray of ethyl chloride, and the treatment in each case continued for some considerable time.—*Guy's Hosp. Gazette*, Feb. 20, 1909.

DIONIN IN TRAUMATIC CATARACT.—In a recent case of traumatic cataract caused by a tack penetrating the cornea and wounding both iris and crystalline lens, a 5-per-cent. solution of dionin has given me excellent satisfaction, reducing pain to a minimum and producing absorption of the extruded lens substance. The tension of the eye has remained normal.—Dr. Frank H. Koyle, 26 Main Street, Hornell, N. Y.

SPRAINS.—To remove the swelling which follows a severe sprain, especially of the ankle, when the ambulatory instead of the fixation treatment is to be adopted, ichthyol may be ordered for frequent and deep massage. Phenol may be added, or oil of citronella. It should be combined with lanolin to get best results:

Ichthyoli	fl.	ʒij
Adipis Lanæ		ʒj
Ol. Citronellæ	m.	xxx

M. Sig.: Apply by deep massage three or four times a day.—*Amer. Jour. Clin. Med.*

HYPNOTIC.—The following prescription has been used with gratifying results:

Veronali		ʒss.
Trionali		grn. xv
Tinct. Vanillæ	m.	viiij
Alcoholis	fl.	ʒiiss.
Glycerini	q. s. ad.	fl. ʒij

M. Sig.: Two teaspoonfuls in wineglass of water, to be repeated in half an hour if necessary.—*Medical Fortnightly*.

BOILS.—Frequently boils may be aborted by rubbing on the boil the following ointment and then strapping with adhesive plaster:

Ichthyoli,	
Ungt. Hydrargyri,	
Ext. Belladonnæ	aa. ʒj

M. Sig.: Apply locally and strap with adhesive.—*St. Louis Med. Rev.*

ARTERIOSCLEROSIS.—

Iodivali 0.3 Gm.

Diuretini 0.5 Gm.

M. Ft. pulv. d. tal. dos. xx.

D. S. Thrice daily, one powder in water or in wafers.—

Deutsch-Amerikanische Apotheker Zeitung, June, 1909.

ETHYLMORPHINE IODIDE IN OPHTHALMOLOGY.—Dionin, which is ethylmorphine hydrochloride, has earned a well-established place in ophthalmology, and quite recently the corresponding iodide has been recommended for various eye diseases. F. R. v. Arlt finds that it is less painful to the eye, but does not dissolve quite as readily as dionin. The presence of salt in the tears is important, for almost all drugs used by the eye-surgeon dissolve more readily in a salt solution than in water. If dionin be introduced into the eye with some salt, the pain will be less marked than with dionin alone. As far as therapeutic activity is concerned, the iodide is said to be equally as valuable as dionin, and is perhaps to be preferred for children.—*Therap. u. Hygiene d. Auges*. 1909, No. 32.

TROPACOCAINE IN LUMBAR ANESTHESIA.—W. Tomaschewski (*Deut. med. Woch.*, Dec. 19, 1908) records the results which he has obtained with lumbar anesthesia in the Military Medical Academy of St. Petersburg. In all, 104 patients were subjected to the procedure, of whom 87 were males and 17 females; 120 operations were performed on these persons under its means. During the period from Oct., 1905, to Dec., 1907, 60 per cent. of all operations on the lower half of the body were conducted in this way. Lumbar anesthesia was not applied in cases of definite spinal cord disease, when marked nervousness or hysteria was present, in operations for which no plan could be made beforehand and which were expected to last a long time, to entail great difficulty, and possibly create an unfavorable impression on the mind of the patient if awake, for operations which necessitated much raising of the pelvis, and for operations deep down in the peritoneum.

The ages of the patients varied between 14 and 63 years. In 6 cases—that is, 5 per cent.—no anesthesia was induced; in 6 further cases the anesthesia was incomplete. No unpleasant or threatening symptoms were met with.

In one case, in a small patient in whom 0.1 Gm. of tropacocaine was injected, the anesthesia reached up to the line of the nipples. Two hours after the operation the patient complained of feeling of oppression, and there was pallor and cyanosis of the face and lips. This passed off after twelve minutes. The dose was obviously too high. In another case a large quantity of cerebro-spinal fluid was accidentally allowed to drain away, and a severe headache lasting three days followed. Headache of short duration and some retching was seen in a few cases.

The average duration of the anesthesia was seventy-one minutes, while the average duration of the operation was forty-four minutes. In 15 per cent. of the patients affections of the vascular system or lungs were present, but in no case were these affections rendered worse in any way.

The author used tropacocaine exclusively and injected from 0.05 to 0.09 Gm. into the lumbar canal at first by means of Bier's syringe, and later by means of a syringe designed by himself. The drug was dissolved in the cerebro-spinal fluid. Scrupulous asepsis is required, not only with regard to the skin, instruments, etc., but also with regard to the tropacocaine itself.

In 40 per cent. of his patients no changes were found in the urine, while in 60 per cent. traces of albumen, detectable by means of Spiegler's reagent, were met with. The albuminuria cleared off in from one to three days. Severe nephritic changes are, according to the author, extremely rare. In this respect, tropacocaine applied by lumbar injection is preferable to chloroform inhalation. He regards tropacocaine as the safest and best lumbar anesthetic.—*British Med. Jour.*, May 8, 1909.

STROPHANTHIN IN PURE FORM.—The desire to standardize accurately potent heart tonics, such as digitalis, has led to the introduction of the term "frog-unit." This refers to the amount necessary to cause systolic rest within thirty minutes of the heart

of *rana temporaria*, weighing 30 to 40 Gm. Since the various preparations are not, however, absorbed equally fast from the lymph-sacs of the frog, it is a much better plan to employ principles known to be chemically pure. Strophanthin has latterly been employed for intravenous use, where quick action is desired.

Most specimens of this glucoside are impure and amorphous, but recently Thoms has succeeded in isolating the principle in pure, crystalline form from the seeds of *strophanthus gratus*. This *gratus-strophanthin* Thoms, manufactured by Merck, was employed in 32 patients by P. Fleischmann and H. Wjasmensky. The dose given for strophanthin is usually $\frac{3}{4}$ to 1 Mgm., but with the pure, crystalline preparation no more than $\frac{1}{2}$ Mgm. should be injected. The results of an injection are very evident: Very soon the pulse will slow, the pulse amplitude rise, and within three hours diuresis begins. The lowest pulse-rate is noticed between six to eight minutes up to several hours after the injection. The duration of action varies with the case; sometimes it is also desirable to give digitalis or other heart tonics. The best results are always seen in cardiac decompensation; less effect is evident in pneumonia, scarlet, and other infections, while the tachycardia of phthisis, carcinoma, etc., is usually not reduced. In one case of Basedow's disease the pulse even increased in frequency. Untoward effects are seen very rarely, but the dose should not be too high in cachexia. Cumulative effects should be guarded against, particularly if the patient has been taking digitalis.—*Deutsch. med. Woch.*, 1909, No. 21.

UTEROVAGINAL CATARRH, LEUCORRHEA, ENDOMETRITIS, ETC.

—During the past two years I have experimented with Glyco-Thymoline in the treatment of some of the catarrhal conditions which affect the female genitalia. The splendid results which I obtained on the naso-pharyngeal surfaces led me to try it on other mucous surfaces where the conditions were substantially the same. Actual clinical experience has proven to my satisfaction that in Glyco-Thymoline the practitioner has at his disposal a remedial agent which in my opinion is unquestionably

superior to the topical application which I formerly employed. Without fear of contradiction I can say it is by far the best deodorant ever put in a purulent vagina. Under its influence the character of the discharge is rapidly altered, and that comfort, relief and freedom from malodor, which is of so much importance to the female patient, is secured.

Glyco-Thymoline, by reason of its peculiar composition produces the rapid depletion so desirable, cleanses the surfaces and maintains an aseptic condition of the parts.

As an irrigation for the uterus and vagina, solutions of 10% to 25% used hot (105°) are most desirable; when the uterus is highly congested an intrauterine irrigation of pure Glyco-Thymoline will produce wonderfully good results.

When I exhibit Glyco-Thymoline on tampons I find that pure Glyco-Thymoline produces the best results.

Louis P. Reimann, M. D.

A CONVENIENT CHLOROFORM PACKAGE.—Much interest is being manifested in the chloroform dropper-ampoule marketed by Parke, Davis & Co., and which, in the opinion of a good many physicians and surgeons, is the most convenient and practical chloroform package that has ever been introduced to the profession. The new device is at once a hermetically sealed container and a perfect dropping-bottle that can be carried about in the emergency bag at all times in readiness for immediate use. It supplies in portable form enough of the anesthetic for one service—about thirty grammes. The desirability of such an individual package and its superiority over the ordinary amber, cork-stoppered bottle heretofore supplied is appreciated when one remembers that chloroform in broken packages rapidly deteriorates under the influence of air and light and becomes contaminated with chlorine decomposition products.

The dropper-ampoule is, furthermore, a very economical package, as loss by evaporation, spilling of contents, and deterioration are practically eliminated. The chloroform may be dropped directly upon the mask with ease and accuracy. The anesthetist has perfect control of the outflow and is enabled to regulate at his discretion the intervals between drops.

Physicians desiring further information relative to the dropper-ampoule are advised to write to Parke, Davis & Co. for their illustrated circular descriptive of the new package, addressing them either at their main laboratories, Detroit, Mich., or any of their branches.

ANTIPYRETIC, ANALGESIC AND ANTISEPTIC POWER.—In speaking of the treatment of articular rheumatism, Hobart A. Hare, M. D., Professor of Therapeutics in the Jefferson Medical College and Editor of *The Therapeutic Gazette*, says: "Any substance possessing strong antipyretic power must be of value under such circumstances." He further notes that the analgesic power of the coal-tar products "must exert a powerful influence for good." The lowering of the fever, no doubt, quiets the system and removes the delirium which accompanies the hyperpyrexia, while freedom from pain saves an immense amount of wear, and places the patient in a better condition for recovery. The researches of Guttman show conclusively that these products possess a direct anti-rheumatic influence, and among those remedies, antikamnia stands pre-eminent as an analgesic and antipyretic. Hare, in his *Practical Therapeutics* says: "Salol renders the intestinal canal antiseptic," a condition absolutely essential in the treatment of rheumatism. In short, the value of salol in rheumatic conditions is so well understood and appreciated that further comment is unnecessary. The statements of Professors Hare and Guttman are so well known and to the point and have been verified so often, that the uses of "Antikamnia and Salol Tablets" are at once apparent. Each of these tablets contains two and one-half grains of antikamnia and two and one-half grains of salol. The proper proportion of the ingredients is evidenced by the popularity of the tablets in all rheumatic conditions.

ABSTRACTS.

THE DEFECTIVE CHILD.—The defective school child has recently been made the subject of an important investigation in Germany. In striking contrast to the tardiness with which New York City has awakened to the necessity of establishing special schools for defective children, Germany had already set a good example, for in 1905 there were 230 such schools in 150 German provinces, registering 15,000 children. That this enormous material furnished an enviable opportunity for studying the origin and antecedents of the various forms of degeneration encountered early in life was fully emphasized seven years ago by the illustrious psychiatrist Kraepelin, and has recently led to some important researches conducted by Eugene Schlesinger (*Archiv f. Kinderheilkunde*, Vol. 16, No. 1).

The analysis by this careful investigator of the past history and antecedents of 138 defective school children showed that in 27 there was no predisposing event that could be considered sufficiently important to have causative relationship to the present defective condition. In 24 per cent. of the remainder there were unmistakable evidences of degeneration in the brothers and sisters. In 17 per cent. of the cases truancy may have accounted for the mental backwardness, while in 13 per cent. this was attributed to conditions associated with abject poverty in the home. In most of these cases alcoholism in the parents was a coincident circumstance, but its causative role was distinctly apparent in only 2 per cent. of the cases. Ten per cent. of the cases revealed a neuropathic inheritance, but many of these cases could be explained on the basis of severe antecedent illness in the child, particularly nervous diseases, such as epilepsy, cerebral paralysis, and cerebral syphilis, and also to tuberculosis, diseases of the eye, or to the severe disorders of infancy. In 6 per cent. the defective condition was closely linked with defects in speech, in 5 per cent. with psychopathic deficiencies, while only rarely was deafness found to be a cause. In contrast to these etiological factors, only seldom did birth traumatism, injuries to the head during early childhood, and atrophy of the thyroid, play any role, while the fact that hypertrophied tonsils were so widely prevalent excluded these as important factors in the production of the defective condition. In only 3 per cent. of the cases was the condition purely hereditary, and in 8 per cent. purely acquired, while in the remainder hereditary and acquired influences were both operative. In these, however, the acquired factors predominated.

The above figures are pregnant with significance, for they emphasize the eminent importance of environment, and the urgent need of early prophylaxis in diminishing the ranks of the school defectives.—*N. Y. Medical Record*.

THE TREATMENT OF INFANT DIARRHOEAS WITH LACTIC ACID BACILLI.—(*J. A. M. A.*, August, 1909).—Dunn concludes from his investigation on the action of living lactic acid bacilli that it is of great value in the class of infantile diarrhoeas designated as fermental. The numerous variations in the series show that it is not absolutely a specific treatment. It is possible that these failures may be attributed to the fact that the particular strain of lactic acid bacillus used is not effective against the particular strain of fermenting organisms concerned. It is probable that there are also many other elements tending toward failure of which we know nothing. He believes, however, that this treatment is an extremely valuable resource, and one which is applicable to a very difficult class of cases, and that it should be tried in every case of infantile diarrhoea characterized by saphrophytic fermentation, and in every case of chronic intestinal indigestion and atrophy in which the movements are characterized by evidences of fermentation. He thinks that a ripened milk containing living bacilli to be the best food with which to begin feeding in cases of fermental diarrhoea after the initial period of starvation.

EPILEPSY AND EPILEPTIC CONDITIONS IN CHILDHOOD.—It has long been a mooted question as to what extent convulsive manifestations during infancy and childhood are an expression of true epilepsy or not. A comprehensive discussion of this subject has been furnished by G. Aschaffenburg (*Archiv. f. Kinderheilkunde*, Vol. 46, p. 242), who accepts the classification of infantile convulsions made nearly ten years ago by Hochsinger. The latter divided all the convulsive phenomena of childhood into two groups, the first including the simple variety and the myotonia of the newborn, while the second group comprises those convulsions that are due to hyper-excitability of the nervous system. In the former group laryngeal spasm never occurs, and the convulsive outbreaks may usually be traced back to some infectious fever, autointoxication, etc. In the second group, which comprises the condition widely recognized by German pediatricists as pathological spasmophilia, the convulsions are again classified into four different categories, as follows: 1. Respiratory spasms, occurring as an initial or accompanying phenomenon of clonic convulsions of the extremities associated with loss of consciousness. 2. Eclampsia, associated with laryngeal spasm, occurring either before, during, or after the convulsion; 3, genuine tetany; and, 4, nodding spasms. The

author believes that infantile epilepsy includes all those cases occurring early in life that do not belong to any of the above groups. He asserts that the usual conception of epilepsy is too narrow. It may be broadly defined as consisting of periodic disturbances of the psychic equilibrium, producing mild or severe disturbances of consciousness, with or without convulsions. The latter are not a necessary factor in the clinical picture. As attacks of true epilepsy he characterizes the outbursts of distemper in children, which are periodic in their occurrence, and which frequently attain the height of true maniacal outbreaks. It had been noted by Pfister that the hereditary victims of epilepsy and hysterolepsy, even before the outbreak of the typical, periodic, epileptic convulsions, and beginning during the fourth year of life, exhibited such outbreaks of distemper, sulkiness, and an indisposition to play, which seizures appeared to be the first manifestations of the epileptic condition. It is, therefore, not a matter of indifference that an early diagnosis of epilepsy should be made from such a clinical picture, however much it varies from our usual conception of the disease. Of greater importance, however, is the fact that by means of a rational prophylaxis it is possible to retard the further development of the disease. It is not punishment, but rest and bromides that these children need. The author of the paper does not doubt that the term epilepsy is a generic one, and includes a number of diverse forms, whose mutual relationships are not as yet known. He is inclined to recognize a possible connection between infantile spasmophilia and epilepsy, although he admits that such relationship cannot be proved.

Against this view may be cited the observations made by Walter Birk (*Muenchener Klinik*, 1907, p. 318), and by the same author in conjunction with M. Thiemich (*Jahrbuch f. Kinderheilkunde*, Vol. 65, 3d Series 15, No. 1), on the later development of 53 eclamptic infants studied in the pediatric service at Breslau. None of these children later became epileptic, but only one-third showed normal development, the remainder showing some form of cerebral depeneration. Of those that attained the school age, only one-half progressed normally, while the remainder were sent to schools for defectives. It is noted that one-quarter of the children attending the latter gave a history of spasmophilia during infancy. Even in those children whose mental development was apparently normal, there was observed an increased sensibility and a nervous voice, while light sleep, pavor nocturnus, headache, anorexia, and morning vomiting were common occurrences.

CONSTITUTIONAL ECZEMA OF INFANTS.—E. FEER (*Münch. med. Woch.*, 1909, lvi, 113) calls attention to chronic eczema occurring oftenest during the first few years of life and most

commonly during the nursing period. In contradistinction to chronic eczema the acute form is frequently a true dermatitis; intertrigo is a true dermatitis only if co-existing with a disposition to eczema. The eczemas of older children rest oftenest upon a tuberculous base, and a positive tuberculin reaction may be obtained in almost every case. The real chronic eczema is undoubtedly a constitutional disease, but secondary dermal disturbance is quite common in their course. The two factors of importance in the development of chronic eczema are an inherited disposition and the type of nutrition; either of them may be the more important. There are two forms of chronic eczema to be found: the weeping, scale-forming eczema of the head, and the disseminated dry form. The first form is found oftenest in fat, pasty children, but even the healthiest may be affected. It begins in the scalp, spreading to cheeks and ears; it may spread to other parts of the body; there is very little itching. Overfeeding and constipation are common with these children and a spontaneous cure may be noted, when at the end of the first year a mixed diet is ordered for the child. The second form occurs almost exclusively in artificially fed infants; overfeeding is common and the patients are usually pale, thin, and flabby; chronic nutritional or intestinal disturbances are frequent. It manifests itself as discrete, dry, red, desquamating, infiltrating islands; also as papular and pustular foci. Weeping and scale formation are uncommon; part or all of the body may be involved. It is slow in development, itches, and is difficult to eradicate. Both the gouty diathesis and auto-intoxications have been blamed for this condition. Sudden deaths in children with such eczemas must be referred to "status lymphaticus" rather than to sepsis. Feer's treatment consists of softening the scabs with oil or vaseline; this must be done gradually. He treats weeping surfaces with dilute solutions of aluminum acetate for several days, following it by a paste of oxide of zinc, starch, and vaselin. He bandages the hands to prevent scratching. Naphthalan is added in slowly healing cases, sulphur in the seborrheic forms. Bismuth, zinc, or Lassar's salve is used in dry cases. Fowler's solution internally and slight laxation are of advantage. The amount of food must be reduced to a minimum, the quality also must be reduced. Barley water may be substituted for some of the breast feeding. A reasonable loss in weight need not be feared. Starchy food should be given in reasonable quantities to infants more than four months old; after the sixth month vegetables are allowed. Eggs and soups should be avoided under all conditions. The diet which has brought about the cure should be continued for months. In underfed children cutting down of diet is not permitted; the children should be fattened.

A SIMPLE METHOD FOR THE DETERMINATION OF CASEIN IN COW'S MILK.—(*N. Y. Med. Journal*, Sept. 1909) LUCIUS L. VAN DYKE and ALFRED W. BOSWORTH.—The authors have arrived at a very simple method requiring only apparatus and reagents that are in common use. It is of such value that we quote in detail.

DESCRIPTION OF METHOD.

1. *Measuring and Diluting Sample of Milk.* The milk to be examined is well mixed, and 20 c.c. run into a 200 c.c. flask, to which is added about 80 c.c. of water.

2. *Neutralizing the Milk.* Add 1 c.c. of phenolphthalein solution to the diluted milk and then run into it a solution of sodium hydroxide until a faintly, but distinctly, pinkish shade of color remains through the mixture even after considerable agitation. Any marked excess of alkali must be avoided.

(a) Preparation of a color standard.—More uniform and satisfactory results can be obtained in this step of the process by preparing a color standard for comparison. One method of accomplishing this is as follows: About 20 c.c. of fresh skim milk and 80 c.c. of water are put into a 20 c.c. flask and a small amount of mercuric chloride added to keep the milk from curdling. A few drops of ordinary carmin ink are considerably diluted with water and this is carefully added, a few drops at a time, to the diluted skim milk until a faint but distinct pinkish coloration appears. This can be more readily and accurately perceived by placing beside the flask another flask half full of uncolored diluted milk. The coloration must be as slight as possible and yet be appreciably distinct when compared with uncolored milk. After the color standard has been prepared, the flask is stoppered and kept in a dark place when not in use. In the case of some carmin colors, the pinkish shade in the milk may deepen on standing, especially when exposed to light. If at any time, this is observed, the proper shade can be reproduced by slight dilution with skim milk. The object of using skim milk in preparing a color standard is to avoid the presence of fat, which in case of whole milk separates on standing, adheres to the sides of the flask and obscures the color.

(b) Use of color standard.—In neutralizing a sample of milk, the color standard is placed beside the sample under examination for constant comparison after each addition of alkali. The flasks should be placed on a white surface and in a good light in order to render more sharp the observation of the coloration. In fresh milks, it is usually found that 3 or 4 c.c. of tenth normal alkali is sufficient to neutralize the milk. In cases where milk is not strictly fresh or where it has been kept for some time with mercuric chloride, usually from 5 to 10 c.c. may be required. One can usually add 2 or 3 c.c. of

alkali at the start and then add it in smaller portions, until the milk begins to show signs of neutrality. After that the alkali is added a drop at a time, the flask being shaken after each addition and the color being observed. A little experience enables one to perform this operation with rapidity and accuracy.

3. *Precipitation of Casein.* (a) Addition of acid.—Into the neutralized sample of diluted milk, which should be at a temperature of 18° to 24° C. (65° to 75° F.), one now runs tenth normal acetic acid, adding the acid in approximately 5 c.c. portions and agitating vigorously for a few seconds after each addition. It is usually safe to add about 25 c.c. of acid before examining the milk to see if the casein is separating in the form of white flakes. After adding 25 c.c. of acid and shaking, the mixture is allowed to come to rest. If enough acid has been added, the casein separates promptly in large, white flakes, and, on standing a short time, the liquid above the settled casein appears clear and not at all milky. If the addition of 25 c.c. of acid is insufficient to separate the casein properly, add 1 c.c. more of acid and shake; continue the addition of acid, 1 c.c. at a time, until the casein is observed to separate promptly and completely on standing at rest a short time. The number of c.c. of acid used to effect precipitation is noted and this result is recorded as *A*.

(b) Influence of temperature.—For convenience and uniformity of results, the temperature of the mixture at the time of the addition of acid may be between 18° and 24° C. (65° and 75° F.). Under these conditions, we have found that in most of the milks with which we have worked, 30 c.c. of tenth normal acetic acid gives satisfactory results. In some cases, especially with the milk of cows far along in lactation and high in casein (3.5 to four per cent.), we have had to use as high as 35 to 40 c.c. of acid. We have seldom found any case in which 25 c.c. of acid was excessive. The amount of acid may be 2 or 3 c.c. in excess of that required to effect complete precipitation without seriously affecting the accuracy of the results, provided the temperature of the mixture is below 24° C. (75° F.). At higher temperatures, good results are attainable but care must be exercised not to use much excess of acid; and, of course, the higher the temperature, the less will be the amount of acid required for precipitation. In working at temperatures below 18° C. (65° F.), the casein separates more slowly or requires more acid to separate promptly. In case of milk that is much below 18° C. (65° F.), it is well to use for dilution water that is at a temperature of about 27° C. (80° F.).

4. *Filtration of Casein.* After the casein is completely precipitated, water is added to the mixture up to 200 c.c. mark and the contents are vigorously shaken for ten or fifteen seconds, in order to make the distribution of acid through the mixture

as uniform as possible. The contents of the flask are then poured upon a dry filter. It is generally well to allow the filtration to continue until practically all of the liquid has been filtered.

(a) Rapidity of filtration.—The usual time of filtration should not exceed three to five minutes, when precipitation is complete. The rapidity depends upon the temperature of precipitation and the completeness of the separation of casein. In general, the higher the temperature of the mixture when precipitated with acid, the more rapid should be the filtration, other conditions being uniform. In case of insufficient acid, the filtration is slower.

(b) Appearance of filtrate.—The filtrate should be quite clear, though this is not always a sure indication that the right amount of acid has been added to effect a perfect precipitation. Sometimes the filtrate may be clear, when not quite enough acid has been added, in which case the percentage of casein found is apt to be low; under such circumstances filtration is usually slow. In case of milks rich in fat, a slight turbidity may appear, due to fat globules in the filtrate. The filtrate should be free from all signs of marked turbidity or anything like milkiness. If such a filtrate appears, a new sample of milk should be taken and the operation repeated from the beginning, more acid being used than before.

5. *Titration with Alkali.* After filtration is completed, one takes 100 c.c. of the filtrate and runs into it tenth normal solution of sodium hydroxide until the reaction is neutral to phenolphthalein. The number of cubic centimeters of alkali used is noted and this result is recorded as *B*.

The exact neutral point is not perfectly sharp on account of the presence of phosphates, and the appearance of the end reaction is not as pronounced as might be desired. However, with experience one should have no difficulty in getting within one drop of the correct amount of alkali. One should work to obtain the same shade and duration of color every time. In general, one takes for the end reaction the appearance of a faint but distinct pink coloration, which remains clearly marked through the solution for half a minute or longer before beginning to fade. In the case of milks rich in phosphates, the solution usually grows quite turbid as the neutral point is approached, making it necessary to use special care in observing the color of the end-point of the reaction.

If one desires to make a second titration of the same filtrate, one can use 50 c.c. of the remaining portion, multiplying the result by 2 and recording this as *B*.

6. *Calculation of Results.* The calculation of the percentage of casein from (a) the amount of acid used (*A*) in precipitating the casein and (b) the amount of alkali used (*B*)

in neutralizing 100 c.c. of filtrate, is very simple. Divide A by 2, from the result subtract B and multiply the result by 1.0964; or, expressed as a formula,

$$\frac{A}{2} - B) \times 1.0964 = \text{per cent. of casein.}$$

By using 22 c.c. of milk instead of 20 c.c. the formula becomes simply

$$\frac{A}{2} - B = \text{per cent. of casein; in this case each c.c. of}$$

tenth normal solution being equivalent to 1 per cent. of casein.

7. *Use of Preservatives.* In making casein determinations by this method, it is desirable when possible to use milk comparatively fresh. Milk that is sufficiently acid to coagulate on boiling or that is well soured cannot be used with satisfactory results. However, by adding to fresh milk powdered mercuric chloride in the approximate proportion of 1:1000 or 1500, and keeping the mixture in a cool place, we have been able to obtain satisfactory results with milk that had been kept for two or three weeks. Milk thus treated should be shaken often enough to keep the fat well incorporated in the body of the milk.

CEREBROSPINAL FEVER.—(*The Practitioner*, June, 1909).—Larkins mentions the sera used in the cerebrospinal fever: The use of antidiphtheritic serum was suggested by Wolf, of Hartford, Connecticut, to whom it occurred that there might be some antagonism between the two organisms, because he noticed that there was a decrease of diphtheria coincident with the increase of cerebrospinal fever. He then found that pure cultures of meningococci were killed by antidiphtheritic serum. He, therefore, treated four cases of cerebrospinal fever by antidiphtheritic serum and all recovered. The success hoped for by this method has, however, not been realized. Antipneumococcal serum seems more likely to be of use than antidiphtheritic, owing to the close resemblance of pneumonia to cerebrospinal fever, and of the pneumococcus and meningococcus to one another. He has used it once, owing to the presence of some Gram positive diplococci in the cerebrospinal fluid. No good result followed its use. Jevers and Elder, however, noted improvement after its injection, saying that the patient became quieter and went to sleep; the temperature rapidly fell, followed by a rise some time later, but the patient seemed better and the pulse stronger. The production of a really satisfactory antimeningococcal serum should not be long delayed, and to this we must look as being the most rational, and the best method of combating this disease. Jochman produced a serum for which he claims distinct

therapeutic properties; with it he was able to confer immunity to mice against six times the ordinary lethal dose of the cocci. For humans, doses of 20 c.c. are required either intraspinally or subcutaneously. Of seventeen patients treated by it only 5 or 29.4 per cent died. Ruppel's serum he tried on three patients without success. Recently Flexner's serum appears to be giving very satisfactory results, and, where used, to have brought down the mortality considerably.

THE SICK CHILD.—MORGAN T. ROTCH, in the *Monthly Encyclopedia*, reminds his readers that it is well to understand that different children have different temperaments, and that some cannot help being born with nerves which are easily excited, while other children are born with nerves quiescent. You should understand that by your not appreciating this, and by not being careful to quiet the nervous child and allow the calm child to have more exciting surroundings than the other, that you may produce symptoms which may simulate sickness. The child, under these circumstances, is sick; but you are making it sick. The cry of an infant who is too young to speak or to indicate what is troubling it, is of very great consequence in order that you should interpret whether the child is sick or not. A perfectly well baby may cry lustily, merely indicating by its cry that it is hungry, or that it is sleepy and does not wish to be disturbed by anything of which it disapproves in its surroundings or treatment. The cry again may indicate pain, but differs when it has a pain from indigestion from the merely hungry cry. This, again, differs from the intense cry of earache.

The author lately met with an instance where a young mother, almost from the beginning of baby's life, seemed to appreciate what her different cries meant, beyond what is usual, and it would be well for you if you could acquire the same intelligent appreciation of what is going on in an infant's life. At birth the infant just spoken of cried with hunger, and, being vigorous, it used both arms and legs, endeavoring to kick its mother into attention to its desire for food. One day it began to cry in a different tone, still, however, kicking as before. The mother ascertained that it was the cry of indigestion producing pain in the stomach. This cry, at intervals, continued for many weeks, and then, when the food was regulated, ceased. A short time afterwards, however, the baby cried again, and although it did exactly the same thing with its legs, and did nothing whatever with its hands to point toward the place of irritation, the mother again recognized the difference from the previous cries, and, with further advice found that the baby was suffering from severe earache produced by irritation at the root of its first tooth, which was just coming through the gum, but otherwise presenting no symptoms of swelling, redness or tenderness.

There are many instances illustrating that the child is really sick when the caretakers believe that it is obstinate or bad. Under the latter circumstances the child is punished undeservedly, and with the result of increasing the disease from which it is suffering. The first symptoms of that dreaded and almost universally fatal disease, tubercular meningitis, may be that the child gets frightened easily, and from being good natured, begins to be cross. Many a mother has regretted that she had punished her child under such circumstances, and that she had not asked for advice at a time when it was most necessary. In the disease chorea (St. Vitus' Dance), the early symptoms may be only slight winking of the eyes, getting embarrassed more than usual before strangers, a restless condition, not sitting still when told to, or an awkward use of the knife and fork. These children, over and over again, are punished and disciplined because they are supposed to be disobeying, while really, they are unable to obey.

Many children are pale and listless; show no interest in their usual play, and for this are called lazy. Others show no desire to go to school or to mingle with their schoolmates, and are called bad and obstinate and punished for this. Others again are made to go to school simply because they have no other symptoms which the parents think would show that they are sick, not seeing that they really needed kind treatment and relief from school, rather than to be reproved. In reality, in many of these cases, neglect of the teeth, a lack of purity of the mouth, or a small area of infected tonsil, not sufficient to draw attention to the throat, may be the source of a septic poisoning, of mild grade, indeed, but sufficient to make them anaemic and languid. Of great consequence, therefore, in these cases, is the recognition that the child is sick.

There is much difference in the vitality of young children, naturally, and this is especially shown in infants. This, however, should be understood, and you should appreciate that where a bath of a certain temperature is usually indicated, or where a certain degree of temperature in the open air may be what is good for a number of children, this may, in a perfectly healthy infant, be of injury on account of normal vitality being less in some than in others. You should know that, in many cases, warm, fresh air in a nursery is better for certain babies, on account of their individual vitality, than the extreme cold air which is, at present, the fad of the day. Infants are at times supposed to be sick when they are merely being exposed to too low a temperature by being placed at an open window in extremely cold weather. This in no way implies that fresh, cold air is not good for many healthy infants, but merely that each healthy infant should be treated in the way that is best adapted to it as an individual. The younger the child or baby, the more

it should be protected from seeing too many people, and from becoming over-excited by people who endeavor to amuse them far beyond what comes within the limit of common sense. This, however, must not be carried to the senseless extreme which is also met with among certain people who cannot understand that some variation is indicated in all rules regarding early life.—*Medical Standard.*

BOOK REVIEWS.

TUBERCULOSIS: A PREVENTABLE AND CURABLE DISEASE; MODERN METHODS FOR THE SOLUTION OF THE TUBERCULOSIS PROBLEM.—By S. Adolphus Knopf, M. D., Professor of Phthisio-therapy at the New York Post-Graduate Medical School and Hospital; Associate Director of the Clinic for Pulmonary Diseases of the Health Department; Attending Physician to the Riverside Sanatorium for Consumptives of the City of New York, etc. 8 vo.; 408 pages; cloth; \$2.00, by mail, \$2.20; Moffat, Yard & Co., New York.

Not often is it the fortune of the physician to find a medical handbook designed for his own information which is of such a nature that it can safely be recommended to the lay readers among his patients. The average medical book of course is not intended for laymen; much of it is either totally unintelligible to general readers or capable of very dangerous misapplication if they endeavor to apply for themselves its instructions or, on the basis of its diagnoses, to determine for themselves their ailments.

In Dr. Knopf's concise simple volume on Tuberculosis, however, the physician will find a book which he will almost be tempted to prescribe to the family of a tuberculous patient and to place in the hands of the patient himself for careful reading. For while this book is an admirable summary and guide book for the practitioner, it is so simple, so free from confusing technical discussion that it can be easily understood by any one of ordinary intelligence and even in the hands of the fairly ignorant can do no harm. Placed in the hands of an intelligent patient or his family, the book will save the physician the necessity for hours of oral instruction and will enable the patient to follow carefully brief instructions. For the great quality of the book is that throughout it tells not merely what should be done in the matter of diet and mode of life but specifically shows how fresh air sleeping and outdoor living can be accomplished in the simplest tenement home as well as in the families of those on higher economic planes.

A second quality in the book is its well balanced optimism and its absolute avoidance of anything that might be construed as making the direct advice of the physician unnecessary. Optimism in such a disease can very readily be over-emphasized. And over-emphasized optimism might readily lead to under-estimation of the seriousness of the first symptoms and consequent neglect of necessary curative and preventive measures. The book most cleverly holds out hope to the patient, gives him always the feeling that he has every chance to recover from a most serious complication but always provided he follows the essential regime. No where is the seriousness of the disease minimized and at the same time there is no word than can produce in the mind of the sufferer a morbid fear or a sense of desperation. Similarly in discussing measures for preventing transmission of the disease, due emphasis is laid upon the importance of sanitary measures and the patient's duty in protecting his fellows is based on so convincing a ground of ethics and brotherhood that it will have the effect of creating cheerful obedience which no amount of scaring or harsh lecturing can do. As Dr. Knopf points out, greater happiness accrues to the sufferer who has always the sense of doing his duty in these particulars.

The note throughout the book is action. Always something to do is suggested and the reasons for doing these things are so clearly set forth that there is no danger that the measures will seem trivial or merely optional in their import. And to physician and layman alike, the specific quality of these measures will be of great service. If out-door sleeping or life is advised, ways of achieving this are pointed out; plans for window tents, roof tents, sleeping balconies, yard shelters are given with approximate costs. For those who cannot afford special reclining chairs and tents, ways of utilizing a steamer chair and umbrella are suggested. When disposal of sputum is discussed, measures within the reach of all are indicated. Even the matter of arranging the covering on outdoor cots is fully described.

To the physician, the versatility of its suggestions and the definiteness with which it describes how measures applicable to the condition—physical and economic—of the patient—can be devised will be of great service. For the author does not fall into the mistake of advising merely ideal methods of treatment. It is easy enough to suggest change of climate and residence in an ideal sanatorium, it is simple enough to suggest methods whereby the wealthy can isolate a patient under ideal surroundings. Dr. Knopf, however, takes conditions as they are—provides the best possible makeshifts for those who can afford no such luxuries and must live or die at home. Realizing actual living conditions so thoroughly, he even lays down a course where it is necessary for the patient to sleep in a room with others. And for such cases he shows exactly the fumigatory and antiseptic

methods to be followed to make the best of bad living conditions. Specific throughout, he gives exactly the chemicals and methods to be followed to fumigate a tenement room—to dispose of sputum in flats where there is no coal stove.

The volume is valuable for patient and family, is likewise valuable for those who are not yet afflicted. For its outline for the sanitary life and for protection against the White Plague are distinctly educative—and make the book a most important weapon in the war against tuberculosis.

Finally as a condensed record of the world's scientific knowledge of the subject and of its achievement in the fight the book might well be prescribed to municipalities. For it describes—with plans—the leading institutions for the cure of tuberculosis here and abroad—gives at length the wise educative and policing measures of various health boards, teaches how anti-tuberculosis campaigns may be carried on effectively. Here the cities or the private philanthropist will find a full statement of those measures for combatting tubercular epidemics which have proved effective in real warfare on the plague. The physician will find the book valuable because of its expedients, because of its discussion of climates adapted to individual cases. Moreover, the convenience of handing such a book to a patient and saying to him "What you must do is described on pages such and such. But read the book through" will save him time in oral directions and will assure him that his oral instructions will not be misapplied or perhaps given but casual consideration.

As the announcement of the book states: It is a book for the patient and those living with him; for physician and sanitarian; for statesmen and legislators; for educators; for rich and poor.

DIET IN HEALTH AND DISEASE.—By Julius Friedenwald, M. D., Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhrah, M. D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Third revised edition. Octavo of 764 pages. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, \$4.00. Half Morocco, \$5.50 net.

The new edition of this comprehensive dietary handbook has been strengthened materially by the rewriting of the articles on milk and alcohol and the additions to the articles on diet in tuberculosis which have been made to include the latest determinations in this important branch of treatment where diet plays so significant a part. The revising of the article on salt-free diet also is important and the new chapter on rectal feeding will be found most valuable by practitioners whether they have hospital

facilities at their service or are compelled to resort to such a measure in ordinary practice. The discussion of the caloric needs of infants and the addition of several tables on the caloric value of general foods also render the book still more useful to the practising dietician. Winton's table showing the composition of diabetic foods completes the extensive dietary exposition in the chapters devoted to diabetes. Of special timeliness in view of the ardent discussion of food adulteration is the short account of the simpler methods used in detecting certain common food adulterants, and the exposition of adulteration to be suspected in food that seems to provoke derangements furnishes the physician with valuable clues if food analysis seems to be necessary to determine mysterious symptoms.

The twenty-five pages devoted to the dietary qualities of milk and its proper preparation and rules for its commercial handling when read in connection with the subsequent chapters on the feeding of infants and children, give the physician whose practice lies in this field very complete information about the dietetic treatment of young patients. Chapters such as these are especially welcome to those who have devoted major attention to diseases of children for they will hasten the day when the general practitioner who has had no time to give special attention to diet for babies will cease trying to overcome errors in feeding by the administration of drugs which can never replace properly adjusted foods. Moreover, the data in these chapters are so arranged that the physician can readily supply his patient with written memoranda which will put in the mother's hands a complete feeding list not merely for the baby but for the older children. For the book also goes into the subject of proper food for school children—a subject too often entirely neglected by the physician. The handbook moreover avoids laying down any single system of feeding and gives attention to many different schedules and plans for modifying milk as employed by the leading pediatricists. Missing in this chapter apparently are any special rules regarding regular normal diet for nursing mothers—a subject about which there is so much difference of opinion and so much superstition that the collating of the practice of the specialists would be at once valuable and interesting. It is to be hoped that room may be found for this topic in subsequent editions.

In general the volume gives almost encyclopedic information about foods, their chemical constituency, caloric and special dietary value. Specifically the book lays down complete dietaries for nearly three hundred different ailments. Where authorities differ many different diets are outlined for the choice of the physician in dealing with individual cases. Of value too are the complete diets employed in various hospitals, insane pavilions, tuberculosis sanatoriums, children's wards, almshouses and other

BOOK REVIEWS.

special institutions here and abroad. The army and navy diets also are given.

As the book deals with diet in health as well as in disease, its suggestions of normal and preventive household menus, its inhibitions of certain foods, its suggestion of little known, but valuable, foods for peculiar exigencies are most useful in the field of preventive and sanitary medicine. As an indication of the range of the book, may be cited the article on diets for athletes during training, diet for singers and speakers, diet for indoor and outdoor manual laborers, etc. An odd bit of information in this particular is the fact that the Choristers in St. Paul's School, Baltimore, are absolutely forbidden to eat nuts of any character.

It is well enough for the physician to suggest certain articles of sickroom diet to the average housekeeper. Where these things are to be had ready-made, he can be sure that the patient is getting fairly what he has prescribed. Food, however, in the hands of the average cook undergoes such fearful and wonderful changes between its raw state and its final appearance on the invalid's tray that the physician frequently hesitates to advise some special dish. In this emergency, the physician's "cookbook" which forms part of the appendix, enables him to hand to the housewife explicit instructions for the preparation of all unusual articles of diet. Of particular interest is that part which deals with the proper cooking of meat and the use of egg and milk in preparations for delicate digestions.

TREATMENT OF THE DISEASES OF CHILDREN.—By Charles Gilmore Kerley, Professor of Diseases of Children in the New York Polyclinic Medical School and Hospital, Attending Physician to the New York Infant Asylum and Maternity, Assistant Attending Physician to the Babies' Hospital, Consulting Physician to the Sevilla Home for Girls, and to the New York Home for Destitute and Crippled Children; Consulting Pediatricist to the Greenwich (Connecticut) Hospital. Second edition, revised. Philadelphia and London: W. B. Saunders Company, 1909.

The new edition of this valuable work has but few changes and is very little larger than the first. Two new sections have been added on the care of acute illness and on vaccine therapy and new diagnostic methods. Dr. Kerley lays stress on the fact that this is a work for the general practitioner and not for the specialist in children's diseases or the undergraduate student. Few books on treatment bear the stamp of so much originality and common sense.

COMMON DISORDERS AND DISEASES OF CHILDHOOD.—By George Frederic Still, M. A., M. D., (Cantab.), F. R. C. P. (Lond.); Professor of Diseases of Children, King's College, London; Physician for Diseases of Children, King's College Hospital; Physician to Out-Patients' Hospital for Sick Children, Great Ormond Street; Honorary Member of the American Pediatric Society. London: Oxford University Press, 1909.

Dr. Still one of the leading pediatricists of Great Britain has contributed a most interesting volume. He has not attempted to write a new text book, but gives the reader the result of his many years of experience. The character of the work has a distinctly personal tone.

LACTIC ACID AS AN AGENT TO REDUCE INTESTINAL FERMENTATION.—HEINEMANN (*Jour. Amer. Med. Assoc.*, 1909, lii, 372) says that the usefulness of lactic acid or lactic ferments as curative agents for intestinal fermentation is still problematical. Much clinical evidence has accumulated since Metchnikoff recommended the use of *Bacillus bulgaricus*. This bacillus digests some of the casein of the milk and also decomposes some of the fats, so that the taste of the milk becomes disagreeable. Metchnikoff advised the addition of the paralactic bacillus (*Streptococcus lacticus*) in order to obviate this difficulty. Heinemann thinks that the association of the two organisms leaves doubt as to which one is responsible for the beneficial effects claimed. Since Metchnikoff published his work, many other lactic acid producing organisms have been advised by different observers. Heinemann also believes that the experiments which have been reported in regard to finding the Bulgarian bacillus in the feces are incomplete in so far as no statements are made in regard to the number of the bacilli found in relation to other intestinal bacteria. Recently Herter and Kendall have investigated the fate of *Bacillus bulgaricus* in a monkey. They failed to establish the preponderance of the Bulgarian bacillus in the ileocecal region. They found that the number of these bacilli was relatively smaller in the large intestine. Their assumption is that the introduction of lactic acid bacilli reinforce the enfeebled action of the normal intestinal lactic acid bacilli against pathological varieties of bacteria. Heinemann believes

that the question of the usefulness of bacteria in the digestive tract is a debatable one—although most authorities seem to agree that the production of acids in the colon is of value for the inhibition of the growth of putrefactive bacteria. However, Heinemann says that it has not been shown that lactic acid is produced in any considerable quantity by the presence of lactic acid bacteria in the intestine. It is true, though, that clinical evidence has shown that sour milk and pure cultures of lactic acid bacilli in connection with a diet in which milk is a prominent feature are of value for inhibiting intestinal putrefaction. Heinemann tested many of the commercial preparations for the artificial souring of milk. Samples were examined bacteriologically, their lactic acid forming properties were tested, and observations made with regard to the palatability of the artificial product. Ordinary sour milk, buttermilk, and the effect of the commercial preparation on pasteurized and boiled milk were also tested. Heinemann's experiments showed that the claims for the artificial souring of milk are not justified. Furthermore, it is largely questionable whether artificially soured milk possesses any therapeutic advantages over milk naturally soured. He thinks that *Streptococcus lacticus*, the organism responsible for the natural souring of milk, produces about the right palatability. When milk has solidified from the coagulation of the casein brought about by *Streptococcus lacticus* it contains these bacteria in almost pure culture. Milk which has reached this stage is eaten by many people as a delicacy. Raw certified milk is preferable to boiled milk for the use in the souring process, as boiling alters the taste. However, he thinks it better to boil or pasteurize the milk if certified milk cannot be obtained. If this is deemed necessary, an artificial starter must be used. Any of the commercial preparations serve for this purpose—lacto-bacilline, fermentlactyl, kefir, yoghurt, or lactone. A small amount of the artificially soured milk may be used for subsequent inoculations. Metchnikoff believes that the presence of yeasts is detrimental, yet all of the commercial preparations save one contained yeasts in large numbers. Yoghurt of the Bulgarians, kefir, koumyss, leben, and all the other fermented milk beverages contain alcohol-

forming yeasts. Heinemann says that the question of taste is of considerable importance, and believes that the taste produced by the activity of *Streptococcus lacticus* with the addition of a yeast is without doubt the most preferable.—*Amer. Jour. Med. Sciences.*

PEDIATRICS

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Vol. XXII

OCTOBER, 1909

No. 10

EDITORIAL.

A CHANGE OF MANAGEMENT.—With this issue PEDIATRICS enters upon a new era. During the past summer a few medical men believing that the didactic teaching of the diseases of children necessitated active promotion of a broader spirit of optimism in the field of medical journalism, sought to acquire the one medical publication in America that most appealed to their ideals. That publication was PEDIATRICS, a journal from its inception, which has stood fearlessly and forcefully for the best and most advanced ideas in the teaching and practice of Pediatrics. Negotiations to acquire the valuable property, which was developed by the earnest and capable labors of Doctor Dillon Brown and his

associates, finally culminated and this issue marks the beginning of a new era of management. PEDIATRICS will be managed and edited by medical men engaged in active practice, whose highest aim is to make it a reliable and trustworthy exponent of the most advanced progress in American Pediatrics.

OUR POLICIES.—It is customary, in assuming a new regime of government, or taking charge of a new business to outline the policies that are to be followed. In accordance with this custom, the Editorial staff of PEDIATRICS desire to proclaim that their highest aim and object will be to faithfully and honestly mirror within our pages the best thought of the leading teachers and practitioners—particularly as exemplified by American Pediatric practice. No country or nation can boast of a medical profession more progressive as a whole, or made up of more painstaking, conscientious, capable individuals than in this great and broad United States of America.

When this country was younger than it is today, the medical profession looked to Europe for inspiration and advanced teaching, but the world no longer considers England, Germany or France the exclusive birth-place of all scientific progress, since today America is equally as fruitful a field for medical discovery, advancement and development, for the pages of this country's medical history are emblazoned with achievements of American masters in medicine, such as Ephrim McDowell, Robert Batty, Crawford W. Long, Marion Simms, Joseph O'Dwyer and others who will be honored and revered as long as medicine is a science.

While recounting the glorious achievement of the American physician, we are not unmindful, though with regrets, that evils and abuses have arisen in the Profession of Medicine. To have expected otherwise, would have been the height of folly. But it has been said "it is upon the mount of failure and the intelligent interpretation of mistakes that success is always built." The medical institutions of this country, proving no exception to the adage, have year by year plunged forward with herculean strides, carrying our ideals closer and closer to the ultimate goal of useful, helpful, honest and fearless success.

Not unmindful of the wonderful and daring achievements of the pioneers in Medicine whose earnest, fearless devotion to the profession left us a glorious heritage, the present Editorial staff now makes its bow and takes up its duties with a live, genuine interest for the present, and a strong, earnest, everlasting faith in the future of the American physician, feeling that we will have the helpful co-operation of the same. "Lastly," in the language of the parson, "let it be said" that our platform will constitute an unswerving adherence to honest principles, absolute loyalty to the highest professional interests and attainments, and a conscientious, earnest effort—an idealism among the profession—to uplift and promote practical scientific progress.

ADVERTISING IN PEDIATRICS.—We hold that the advertising pages of every scientific publication is entitled to a "square deal." It is a much to be deplored fact now-a-days that some of the editors of quasi medical official organs look upon all advertising as venal muck, and make believe they would shun it as something that would soil their pharisaical fingers, but they know, or at least they ought to know, that the advertising pages of every medical publication are a desirable feature, not only from the source of revenue whereby the subscription price is kept within reasonable price, but because of the valuable information they should and do offer to those who search the advertising pages with discriminating intelligence. This, the American physician is capable of doing without any paternal supervision, or what not. No medical publication of any standing, today, could have achieved its present success without the substantial aid of the liberal advertiser, and it is a deplorable fact that many of the advertisers, so freely attacked, and unjustly condemned by these pharisaical Pariahs, were once eagerly sought and their money gladly accepted as *quid pro quo* for legitimate business. It is safe to assert, without fear of contradiction, that the medical profession has been greatly benefitted from the gradual and increasing growth of the American Medical press—made possible by the liberal patronage of the legitimate advertisers. Therefore, in our humble opinion, it is infinitesimally small to belittle medical adver-

tising simply because one "higher up" orders it done. The history of every medical preparation or appliance advertised to the medical profession during the past fifty years proves beyond peradventure of a doubt that only meritorious preparations have stood the test of time and won favor in the hands of the profession. It is true that many preparations have fallen into innocuous desuetude, which shows that the medical profession is thoroughly capable of taking care of itself without any manner of paternal supervision from cliques or combinations.

STANDARDS OF ADVERTISING.—Every successful publication, medical or lay, reserves the right to exercise a rational supervision of its advertising department, and PEDIATRICS will maintain certain rules and regulations to which all advertising must conform. These rules will meet with the approval of the honest, ethical advertiser, as well as the liberal minded physician.

1st—No advertisement will appear in the advertising section of PEDIATRICS exploiting any pharmaceutical product, the manufacturers or proprietors of which do not freely and accurately give the exact character and ingredients entering into or forming its component parts.

2nd—Any advertisement containing dangerous or toxic ingredients will be refused.

3rd—Advertisements presenting extravagant or impossible statements will be refused.

4th—Advertisements of pharmaceutical preparations or appliances exploited in accordance with rule 1st, which are needed, or can be used in alleviating the ills of childhood, will be accepted; so also will advertisements exploding goods for the nursery, and for the child's happiness or amusement.

Not a single line of advertising will ever be printed within the literary pages. There will be no advertising inserts; no commercial notes of any description whatsoever. We regard each subscription as a contract with the physician to furnish him monthly with fifty or more pages of the most up-to-date and reliable information that can possibly be collected upon the sub-

ject of Pediatrics. While carefully, but rigidly guarding our subscribers' rights along these lines, we at the same time beg of you to read the announcements of our advertising patrons, and trust you will favor them with enquiries and requests for samples; and when so doing please be so kind as to mention having seen the advertisement in Pediatrics.

The reputable manufacturers of this country, to a man, are in perfect accord with these rules and regulations, and we believe they stand ready to work with the profession for its mutual benefit and advancement. The summing up of the whole situation is that the individual physician is, or should be, sole dictator to himself in the matter of prescribing. If he uses a proprietary remedy or pharmaceutical preparation and it produces the desired effect better than any Galenicals he could possibly obtain, he will continue to use it, or at least he should, and if he did not, he would be false both to himself and his patient.

EARLY DIAGNOSIS OF MEASLES.—From the number and variety of new diagnostic signs for the early recognition of measles, it would almost appear that failure to detect cases of this malady in its inception will some day amount to criminal oversight—for it is conceded that the pre-eruptive period is the very stage of the disease which is most contagious, and that nearly all cases of transmission occur at that time. The need of isolation is then most imperative before any eruption has manifested itself, and our medical school-inspectors ought to be the instrument through which the morbidity of measles will undergo a great numerical decline. A few years ago our early diagnostic resources were practically limited to the simultaneous invasion of the conjunctivæ, nose and larynx by an acute catarrhal process. Even today this syndrome is of great value, because we know that the tears, nasal mucus, saliva, expectoration, etc., teem with the contagious principle of the disease, and that any such association of symptoms would alone justify isolation. But we now have a number of "clinchers" in making a precocious diagnosis. Besides "Koplik's spots," now too well known to require any comment

here (further than the statement that they will hold good as a diagnostic sign in 95 per cent. of all cases), we have the erythemato-pultaceous stomatitis of Comby, which is said to be generally present two days before the eruption. In this condition we have an unnatural reddening of the buccal lining especially of the mucosa of the gums, while the inflamed membrane shows more or less white pultaceous deposit. We further have Sevestre's soft palate phenomenon, a punctiform erythema very often seen in this locality, before the cutaneous eruption appears. Bolognini's sign, while not proper to measles, is said to be very commonly associated with that disease. Thought at first to be a peritoneal friction sound, it is now known to be of intestinal origin, and due to a frothy state of the intestinal contents. It is obtained by placing the child in the supine position, and kneading its abdomen. Its rationale is, upon the whole, obscure. Finally the use of cobalt glasses, or of hollow cylindrical glasses containing a copper solution, is now coming into vogue in the early recognition of all rashes. By this artifice, based on the fact of complementary colors, the unaided vision is greatly improved, and the eruption of measles may thus be made out some hours ahead of the customary moment of recognition.

ATRESIA VAGINÆ IN YOUNG GIRLS.—A recent talk among New York medical men of large experience on this topic (a talk elicited by the appearance of a typical case of the trouble) disclosed the fact that none of them had ever before personally observed a case—a case, that is, of complete atresia. This does not, of course, necessarily show that the affection is excessively rare, but it is certainly rarer than text-books might lead us to suppose.

The case in question may perhaps with profit be briefly described. The girl, a young Russian immigrant, had reached her fourteenth year without menstruating. About two weeks before her mother brought her to the clinic the child had begun to suffer with pelvic pains—severe enough for a few days to affect her appetite and sleep, and afterwards disappearing. Her bowels had been irregular, but not seriously blockaded. Otherwise the history was negative. Her personal appearance was

good, general condition excellent, urine normal. Palpation of the abdomen revealed a tumor in the middle of the pelvis, rounded and slightly fluctuant, also some irregular fecal masses in the descending colon or sigmoid flexure. Rectal examination showed an elongated sausage-shaped tumor lying just in front of the rectum and descending easily when pressure was made on the mass above the pubes. The urethra was normal, while the vagina was entirely imperforate, the hymen being a firm, tough, rough membrane completely occluding the orifice. The examination caused no pain. The mother could not be persuaded of the gravity of the girl's condition, declined operation and took her away.

The treatment in this case therefore cannot be reported. It may be added, however, that it was quite evidently a case in which the uterus itself had yielded to the pressure of the confined fluid and had been converted, doubtless along with the Fallopian tubes, into a part of the cyst-wall. In these cases, inasmuch as the peritoneal ends of the tubes cannot always be relied upon to remain closed, the fluid should be aseptically evacuated a little at a time. This gives the tissues of the uterus and tubes time to contract, and obviates the danger—a danger which had resulted in death in a few reported cases—of septic fluid escaping into the peritoneum. In those cases in which the uterus can be felt as a small “knob” at the summit of the tumor it would probably be safe to make a free crucial incision into the hymen and at once release the occluded menstrual and mucous accumulations.

THE FOLLOWING NUMBERS NEEDED TO COMPLETE OUR FILES.

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Vol. VIII, No. 1 to 12, July to Dec., 1899.

Vol. XI, No. 1 to 12, Jan. to June, 1901.

Vol. XII, No. 1 to 12, July to Dec., 1901.

Vol. XIII, No. 6, March 15th, 1902.

Vol. XIV, No. 3, Aug. 1st, 1902.

Vol. XIV, No. 5, Sept. 1st, 1902.

- Vol. XIV, No. 6, Sept. 15th, 1902.
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Vol. XIV, No. 10, Nov. 15th, 1902.
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Vol. XX, No. 1, Jan., 1908.
Vol. XX, No. 2, Feb., 1908.
Vol. XX, No. 3, March, 1908.
Vol. XX, No. 12, Dec., 1908.

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ORIGINAL ARTICLES

THE INTERNATIONAL MEDICAL CONGRESS, MEETING
HELD AT BUDAPEST, HUNGARY, AUGUST
28th TO SEPTEMBER 4th, 1909. REPORT WITH
ESPECIAL REFERENCE TO THE PEDI-
ATRIC SECTION.

By LOUIS FISCHER, M. D.,

NEW YORK.

*Attending Physician to the Children's Wards of the Sydenham
Hospital, and to the Riverside and Willard
Parker Hospitals, etc.*

When it is considered that over 5,000 physicians from various parts of the world were registered at the opening of the medical congress, then it is not necessary to say that it was a success. I shall speak of the hospitality and extreme good fellowship which prevailed during the session, later on.

Monday, August 30th, was the opening day for all the Sections of the Congress. The Section on Pediatrics was opened by an address of welcome by Prof. Johann von Bokay. Every detail of etiquette was strictly observed and a broad unselfishness and patriotism was forgotten, for Bokay's address was delivered partly in German, and the second half in French.

The international character of the assemblage was always before the eyes of the presiding officers, and not once did I hear a paper read or a discussion held in the Hungarian language.

The following named gentlemen were the honorary presidents of the Section at various sessions: Prof. Hutinel (Paris), Prof. Netter (Paris), Prof. Concetti (Rome), Prof. Fischl, (Prag).

The American pediatricists received considerable attention and courtesy as the following list of honorary presidents will show: Chas. Kerley (New York), Henry D. Chapin (New York), Louis Fischer (New York), Van Derslice (Chicago), Henry C. Coit (Newark), Prof. Hochsinger (Wien), Prof. Escherich (Wien), Prof. Eröss (Budapest), besides many others.

The Pediatric Session began at 9 A. M. and lasted until 12 noon. Between 12 and 3 P. M. time was given for lunch, and for a visit to the various children's hospitals and polyclinics, and to the large state foundling asylum (Findelhaus).

The first paper read at the Congress was by Prof. Hutinel (Paris), en collaboration avec Tixier: *Le rachitisme*. This paper was discussed by Prof. Hochsinger of Vienna. Besides Prof. Hutinel, there were Prof. Comby and Prof. Netter in the audience.

Prof. Escherich (Wien), read the second paper. *Über den heutigen Stand der Skrophulosenfrage*. In this paper he elaborated on the question of identity between tuberculosis and scrofulosis. He laid great stress on the value of a positive Pirquet reaction, and summing up regarded tuberculosis and scrofulosis as identical.

One of the most interesting cases was the presentation of a case of *rachitis tarda* which had been under observation and treatment for many years by Bokay. He presented the patient,

also photographs passing through infancy to childhood and into adolescence. In addition thereto x-ray pictures showing the various changes in the bony structure.

A very instructive paper dealing with syphilis and a study of the Colles' law was read by Dr. Knoepfelmacher, Primarius of the Carolinen Children's Hospital in Vienna. An instructive lantern slide demonstration was given by Dr. J. Winters Braman of New York. This demonstration aroused considerable interest and discussion in proving the value of an outdoor seashore life *versus* an indoor tenement house life. It illustrated better than words could have described, the dangers of living in unsanitary surroundings, the dangers of congested city life, and the deleterious effects of the same on the bony structures. He further showed the good that was accomplished by such simple means as sunlight, fresh air, living out of doors winter and summer, and the value of opened windows. Fischer of New York in discussing this paper said that "European hospitals in general had a great deal to learn from America regarding the question of ventilation. He deplored the fact that year after year he saw windows closed on account of the great fear of fresh air, owing to the danger of draughts. The value of oxygenation is being more and more understood, and its value on the circulation is reflected and seen in the bony structures and in the muscular development of the body.

Prof. Escherich (Wien), presented a paper giving a report of, and describing a new method of preserving human milk. The vast amount of human milk that would otherwise have been wasted was collected and preserved for many weeks, by the following process: The milk must be amphoteric or alkaline, if it is not so, it is rendered alkaline by the addition of a few drops of a bicarbonate of soda solution. He next adds 0.2 cm. of a concentrated 30% Perhydrol solution (Merck). This quantity is sufficient for 400 ccm. of milk. This milk is then thoroughly shaken up and heated for about 10 minutes, at a temperature of 50 celsius. In other words by adding to an alkaline milk the hydrogen peroxide or Perhydrol solution (Merck), bubbles of oxygen are at once noticed at the upper layer of the milk.

It is necessary to allow the action of the hydrogen peroxide or this Perhydrol at least one hour before subjecting it to the water bath of 50 degrees as above stated. Milk so treated can be preserved indefinitely, thus it is possible to collect milk from various mothers and wet nurses, treat it as above described and feed it in suitable quantities at stated intervals. Milk so preserved was tasted by me and retained its apparent freshness and sweetness after one month.

Dr. Meierhoffer showed me some of the clinical results in the Babies' wards of Primarius Dr. Paul Moser, and both the weight chart as well as the stool showed splendid results.

Escherich also presented a new breast pump by Jaschke.

At the same session and during the discussion, Dr. Siegfried Weiss (Wien), presented his new breast pump which is a very simple glass contrivance. The principle depends on the production of a vacuum by filling the pump with very hot water, inverting the glass, and inserting the end into cold water. The last is done so as not to burn the mother's breast. It is then immediately applied. Good suction is at once established and Dr. Weiss showed me how rapidly a breast can be emptied. It is an aseptic curved glass over which an infant's feeding nipple can be attached, so that this combination of breast pump serves also as an infant's feeding bottle.

A very important contribution and one that aroused considerable discussion was a paper by Prof. Dr. Rudolph Fischl (Prag), entitled, 'The Question of *Orthostatic Albuminuria*'. He presented a series of microscopic slides showing sections of nephritis produced mechanically on rabbits. These experiments were conducted to verify the statements of Jehle and others who contend that orthostatic albuminuria can be produced and modified mechanically. During the discussion a patient was presented showing a marked lordosis. This lordosis was corrected mechanically. After removal of the mechanical appliance the lordosis was again well marked, and in about fifteen minutes the urine collected showed marked albuminuria. The albumin was absent prior to the removal of the appliance. Thus the question of cause

and effect of albuminuria in a given number of cases was practically demonstrated.

Dr. Preleitner (Wien), following the paper of Fischl, demonstrated an apparatus for the correction of lordosis.

Next followed a paper by Prof. Genaro Sisto (Buenos-Ayres), entitled, *Les cris dans la heredo-syphilis*. This author calls attention to continuous crying as an important diagnostic aid in hereditary syphilis.

Prof. Violi (Constantinople), gave an interesting review of syphilis in both hospital and private practice.

Prof. Koloman Szegö (Abbazia), gave a resumé of the treatment of scrofulosis.

Next followed a paper by Prof. Genersich (Kolozsvar), on Tuberculosis in Infancy.

Prof. Grósz (Budapest), gave a resumé of the therapeutic value of old tuberculine.

Prof. Concetti (Roma), *De l'hypothyroïdisme et du dysthyroïdisme chez les enfants*.

Prof. Johann von Bókay (Budapest), called attention to the frequent association of herpes zoster and varicella. He spoke of the frequency with which one disease follows the other. Etiologically considered there seems to be some resemblance between these two forms of herpetic and pustular eruptions. This paper offers an opportunity to clinically and bacteriologically study these two diseases when occurring in one and the same child.

Dr. Louis Fischer (New York), read a paper entitled, *Cerebro-Spinal Meningitis Epidemic in New York*. This was a clinical study and a review of the various epidemics to date, with especial reference to the therapeutic value of Flexner's serum. The value of lumbar puncture both as a diagnostic and a therapeutic guide was discussed. The striking results obtained in the treatment of infants under one year, by the intraspinal injection of Flexner's serum are worth considering. Prof. Netter (Paris), Prof. Violi (Constantinople), and Dr. C. G. Kerley (New York), amongst others took part in the discussion.

Dr. Neurath (Wien), read a paper describing an epidemic of poliomyelitis.

Prof. Arthur Keller (Berlin), read a paper dealing with the prophylaxis and hygienic management as a means of reducing infant mortality.

Hecht (Wien), read an interesting paper entitled, Vedauungsstörungen im Säuglingsalter.

Primarius Dr. Berend Téznér (Budapest), read an instructive paper entitled, Die Pathologie der acuten Gewichtsschwankungen im Säuglingsalter. The author of this paper is well known as the Primarius in charge of the Weisses Kreuz Kinderspital in Budapest. His paper was an elaborate contribution to the subject of the reason for the fluctuations in the weight of infancy. His careful observations besides the study of the various food elements in relation to their weight production is well worth studying. We shall refer to this again at some future time.

Another contribution from this same hospital was presented by Dr. Pekár-Teznér. An infantile heart was studied owing to the existence of an ectopie cordis. The pulsating heart was shown by means of a cinematograph.

Dr. Lust (Bruxelles), read a paper entitled, De l'utilité des opiacés en médecine infantile et de leur innocuité relative. This observer has made an elaborate study of the use of opium in infantile medicine. He finds that it is, relatively speaking, innocuous.

One of the most interesting papers was by Profs. Netter and Ribadeau Dumas (Paris), Les prophylaxie des eruptions de serum au moyen de l'usage interne du chlorure de calcium. A series of observations in the hospital at Paris showed that serum exanthemata could be prevented if chloride of calcium was given internally. The importance of this contribution will be apparent later on, for it shows that certain toxins introduced into the body by and with the various sera can be neutralized by using the calcium internally.

Another paper read by Prof. Netter gave a series of instructive observations on para-typhoid infections during infancy. Considerable interest was aroused by this paper in view of the

difficulty of establishing a border line between typhoid and paratyphoid infections. A very difficult matter in some children.

Dr. Henry D. Chapin (New York), read a paper entitled, *Biology as a Guide in Infant Feeding*.

Dr. Z. de Bokai (Budapest), demonstrated a beautiful anatomical specimen showing a diaphragmatic hernia.

Dr. Van Derslice (Chicago), read a paper entitled, *The Present Status of the School Child*.

Dr. Deutsch read an interesting paper dealing with child sleep.

Dr. Henry C. Coit (Newark), read a paper entitled, *The Medical Milk Commission in America*. His views are well known to American readers and will certainly bear fruit on European soil.

Dr. Lukáts (Budapest), submitted a paper on "Studies in Metabolism in Healthy Infants." These observations were carried on in the White Cross Hospital, under the direction of Prof. Berend. The members of the Congress were invited, and a large number availed themselves of the invitation of Prof. Johann von Bókay to inspect the Stephanie Kinderspital. This is a very large children's hospital in which internal diseases as well as infectious diseases are admitted.

Another large children's hospital is the Weisses Kreuz Hospital under the directorship of Herr Primarius Dr. Berend.

The State Children's Asylum X Ullői St. 36, is the greatest institution serving the purpose of State protection of children in Hungary, under charge of Dr. Szontag. In addition thereto the St. Laszlo Infektions Hospital receiving the city's patients is worthy of note.

An interesting institution is conducted by Dr. Ernő Deutsch. Studies in metabolism, infant feeding, and nursling's hygiene are specialized here. It is really a modern scientific infant feeding station. The large Poliklinik under the supervision of Prof. Eröss was inspected by many physicians. It is a modern institution treating all the various specialties of the diseases of infancy and childhood.

This resumé must be considered as a brief excursion through the scientific week of the Pediatric Section at Budapest. Space will hardly permit naming all of the various interesting discussions which took place besides very many papers which were read by their authors, and for absent authors.

It is hardly proper to close this review without mentioning a word concerning the hospitality of the Hungarians. A soirée of welcome began the social functions at the Gallery of Fine Arts (City Park), Saturday evening, August 28.

Sunday morning at 11 o'clock was the official inaugural session at the Municipal Redoute. This session was opened by Erzherzog Josef. The speakers were Graf Appónyi, the Prefect of Budapest, and Baron Koranyi, the President of the Congress. All the delegates of the various countries were called upon for addresses, the American representative being Dr. John H. Musser of Philadelphia.

Monday from 9 to 11 P. M. the Municipality gave a soirée of welcome with an elaborate buffet.

Tuesday evening, ladies' soirée at the Royal Hungarian Agricultural Museum (Szechenyi Island, City Park).

Wednesday evening there was a soirée at the Court held in the Palais.

Thursday evening the Section on Pediatrics with their ladies were entertained by Prof. Bókay in the Gentry Casino. At this dinner all the Pediatric celebrities of local and international fame were present. The host was especially courteous inasmuch as he gave personal attention to each guest. The gayety of the evening was aided by an elaborate musical programme which was greatly appreciated and dancing followed. The manifold after dinner speeches testified to the appreciation of the courtesies bestowed. It is but fair to state in closing that the International Medical Congress held at Budapest will live long in the memory of those fortunate enough to attend, and stamp it as a success both from a scientific and social standpoint.

162 West 87 St.

THE DECLINING BIRTH RATE AND THE PHYSICIAN'S DUTY.*

BY EDWARD J. WYNKOOP, M. D.,

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Much has been written upon the many causes of the decline in the birth rate in this and other countries.

It is not my intention to mention the numerous factors which seem to foster this evil, but simply cite two of them and see if we as physicians cannot do more toward preventing this serious condition of affairs.

The two causes which are taken up briefly here are: 1st, the prevalence of the venereal diseases and 2nd, the deliberate attempt to prevent pregnancy, and if pregnancy does occur, to seek to interrupt its normal course. These two causes will occupy our attention for a brief time.

It is a fact, and figures prove it, that in this as well as in many other so called civilized countries, the birth rate is steadily going down. Germany is one of the few civilized countries showing an increased birth rate. The following editorial is taken from a medical journal of recent date and may prove of interest.

Contrary to the recent optimistic statistics of Commissioner Darlington regarding New York City, the chief clerk of the Census Bureau, W. S. Rossiter, reports an extraordinary decline in the birth rate during the last century. At the census nearest to 1900, the ratio of children to each woman 16 years of age and over was a scant one, instead of two in 1790. In Great Britain the ratio was one, in France .8, in the German Empire 1.1, and in Italy 1.1. "Since the United States, although aided by large numbers of immigrants from all parts of the world, is now main-

*Read at the regular quarterly meeting of the Onadago Medical Society, Sept. 21st, 1909.

taining a ratio of children to females 16 years of age and over, practically the same as that shown by those of the leading nations of Europe, it is clear that population conditions in the Republic are tending to become more in harmony with those obtaining in other civilized countries. The proportion shown for five of the New England States and for New York is the same, or nearly the same as the lowest European ratio, that of France. This is due to various causes, such as the tendency of population towards the city from the country, the gradual adoption of apartments as homes, the more exhausting struggle for existence in large cities, etc. One-half of the white population of the country is composed either of foreign born persons, or the native born children of foreign parents. This class of citizens is found almost entirely in the New England States and the Middle West, the South having kept its individuality of race. In the Middle and New England States, the foreign population formed, in 1909, more than half of the white population, or 518 in every 1,000. In the Southern States foreign citizens or children born here of foreign parents, were only 79 in every 1,000.

In the early days the country was occupied almost entirely by the English (83.5 per cent.), who, with the Irish and Scotch, made more than 90 per cent., the Germans having less than 6 per cent. and the Dutch only 2 per cent. There is little difference in the population of the sexes. In 1790, the male population was 50.9 per cent, and the female 49.8 per cent. The figures in 1900 were 50.2 per cent. male, and 49.8 per cent. female. Mr. Rositer's compilation is very interesting and instructive.*

The care of the cases of venereal diseases has always been an exceedingly difficult one, and it always will be till the people are educated to a right understanding of the true nature of the infection and understand that until a cure is effected, the diseased patient is a menace to society.

Already the death rate from consumption has lessened since a campaign of education has been started. Today all the large life insurance companies recognize the effect education of the

*The Post Graduate Medical Journal, May, 1909.

masses has had toward the prevention of tuberculosis, and tainted family history no longer bars many an aspirant from a life insurance policy.

There is no doubt but that a campaign properly conducted would have an even better effect in preventing the venereal diseases for nowhere is such ignorance displayed by patients in the care of themselves as in gonorrhea and syphilis. Not only do they frequently neglect proper hygienic measures, but travel from pillar to post, if a cure is not immediate, and frequently end in the hands of a quack, or upon the advice of friends, use some stock remedy to bring about a supposed prompt and perfect cure, or more often give up in disgust and stop all treatment and for years remain sources of contagion.

Certain it is, that many times the busy doctor does not take time to fully explain to these patients just what the infection means and what a serious matter it is to neglect any effort at a cure, for very often the patient will leave the physician only partly cured.

In this condition frequently marriage occurs and besides the curse of no offspring, the innocent wife has often contracted a serious pelvic infection from which recovery never fully takes place.

Many other catastrophes could be recorded, but you all are familiar enough with the havoc played by these diseases.

It all resolves itself into a question of the education of the people, so that they will properly realize the dangers that stalk in every avenue of life.

As family advisers, we should urge parents to teach their children to know themselves and not wait to hear it from some outsider.

Not only at home, but in the schools and colleges should this knowledge be taught. Through the different societies and organizations, all districts, factory as well as society, can be invaded and a true understanding of this peril that confronts us, be fully appreciated. With the present tendency toward organizations in all walks of life, it would seem as though a movement started at this time would accomplish a tremendous amount of

good and I understand plans are being matured to form an organization to accomplish just this purpose and let us give it our loyal support.

The deliberate attempt to prevent pregnancy or if pregnancy does occur to attempt to interrupt it, is altogether too common. It is surprising how often one hears the cry "we cannot afford to have any children" or, one is enough, and so on.

Realizing fully how hard this class of cases is to reach, it seems to me some attempt must be made to bring them to a full realization of the harm they are doing to their own welfare as well as that of their country.

It often happens that the family physician is sought by either the prospective groom or bride before marriage and the question of childbearing considered. Very often one or the other come with the desire to find out if the physician does not know of some means whereby conception can be prevented at least for a time. Carelessness in regard to the giving of proper advice frequently leads to the seeking of advice in other places with most unhappy results.

It is our duty to show these patients the dangers that occur from not having children as well as the unhappiness of it. It is not sufficient to simply let them see the present but show them fully what the future means. To point out that pregnancy is not an abnormal condition and that no married life is full and complete without children. It is a fact that the great majority of the unhappy marriages are the childless ones. Furthermore, did you ever stop and think of the number of neurotics in this class?

Look, if you will, through some of your family histories, and see if this is not correct. Furthermore, ask some women of 45 or 50, who have gone the rounds of social pleasures, without children, and see if they are happy. Most every one will tell you no, the greatest mistake ever made was that they had no children.

Ask those who have had only one child and have then seen fit to produce no more, and find out what their answer is. Think

what it means to these parents when death robs them of their only offspring.

There is no question but that much of the serious pelvic disturbances of women is brought on by trying to avoid becoming pregnant, and it would seem at least plausible to assume that many males suffer from prostatic trouble from abnormal conditions.

To those who seek to terminate pregnancy before it is due for the reason of desiring no children or no more children, much can be done. Many times these women seek the family physician for relief and on its being refused, go to those who traffic in this illegitimate work.

Often a timely word of advice from the family physician is not forthcoming and no attempt is made to show the patient the folly and wrong of interfering with nature.

It is my firm belief, that in the great majority of instances, these patients seek relief through ignorance and poor advice and not through a desire to do wrong. Most women naturally look forward to maternity and it is only through the advice of the conscienceless that they seek relief. Often the blame falls on the woman, when the man is many times more to be blamed.

Unfortunately, we have within the profession, those who have neither scruples nor honor and live like vultures on criminal practices. Fortunately, most of these are without the pale of the various organizations, but our duty does not rest with simply letting them pursue their calling uninterrupted. This is a field for the stern arm of organized medicine to deal with, and deal it must.

It has often occurred to me that the decline in birth rate has had much to do with many national problems. For instance if the white race in the south maintains a normal birth rate and the negro an excessively high birth rate, there is no question but what the white race, being the hardier and much more intelligent, would forever maintain the ascendancy. The failure of many churches can be laid at the door of this same condition. When death takes the father and mother, the children are few and far between to take their places.

The abandoned farms and many other things could be cited, upon which the birth rate has had a pronounced effect.

Aside from the Catholic church, there seem to be no organizations fighting for a higher birth rate, but it is certain the future will develop organized efforts along this line.

There is, however, one bright side to all this, and that is, that many of the more intelligent women are recognizing this condition and are having more children than formerly.

Mr. President, the time is ripe for us to realize the duty we owe to our patients and to the community we live in. Let us not sit idly by, but let us strive by every means at our disposal to see to it that the future of this fair land of ours rests securely in the hands of a hardy race. Much has been left unsaid, and only just the border of this topic has been touched.

Let us do our full duty as physicians seeking not only to prevent and cure disease, but to show the people what right living means. Let us wake up to a realization of the condition that confronts us and let us face it like men. If it takes time to explain, and argue and plead, let us do it unflinchingly, but let us do our whole duty. Let us realize that the protection of the home and family is our first duty. We do not half realize the power that lies within our reach and the immense amount of good we can accomplish by doing our full duty simply, tirelessly and persistently.

TREATMENT OF THE ACUTE DIARRHEAS OF INFANCY.*

By J. BURTON NOWLIN, M. D., RICHMOND, VA.

Under the above title, I have included all of those diseases of early life of which excessive bowel movement is the most important symptom. For obvious reasons, the symptomatic diarrhea of the acute infectious diseases is not included. Until bacteriology and chemistry of food metabolism have given us the exact etiology of the different types of intestinal disorders, we must necessarily treat these diseases to a great extent symptomatically at the present time. However, it can be safely asserted that the treatment of these disorders of childhood that have played such an important role in infant mortality is to-day on a more scientific basis than ever before; and it is to be expected that our results in the future will be better than in the past.

General Prophylaxis. In the treatment of the disease under consideration much can be accomplished by prevention, not, however, by preventive measures that are taken only at the onset of hot weather. From the very outset we must realize that anything that lowers the vitality of the baby is a causative factor in the production of these diseases. Therefore, to make our prophylaxis effective, we should begin by looking after the condition of the mother. Why is it that we pay so much attention to breeding healthy, robust colts, calves and pigs and allow our children to be born in almost any condition? Is it because we do not bestow blue ribbons and other premiums on the prize babies at annual fairs and shows? Seriously speaking, we, as physicians, neglect our duty by not giving to the expectant mother the attention she deserves and the treatment she so often needs. If the woman has the proper care as to food, rest from hard labor,

*Read before the Richmond Academy of Medicine and Surgery, July 13, 1909.

freedom from much excitement and proper medical treatment then her baby comes into the world much better prepared to begin and to continue the struggle for existence. If we gave more attention to the woman's breasts before labor, we would have fewer bottle-fed babies and fewer cases of diarrhea to contend with. The constitutional diseases, if present, are to be given appropriate treatment.

After birth, as soon as the mother has rested, she or her nurse should be given careful instructions as to the number of feedings, the interval between feedings, the care that should be given the mother's nipples and the baby's mouth; directions as to the care and preparation of food, care of the nipples and bottles if the baby has to be artificially fed. The amount of clothing, time to be spent in sleep and time to be spent out of doors should be prescribed as well as any other means that will enhance the baby's comfort and well-being.

Of course, the most important item is the baby's food, and here, I think, we have the reason for our failure to cope successfully with the diarrheas of summer. It is my opinion and I think the facts will bear me out, that children do not die so much from the diarrhea as from starvation, slow but sure, due to improper methods of feeding. Is not starvation the reason that the children of the poor who are fed on condensed milk, cambric tea and anything that will stop the child's crying, succumb to the disease in the hot weather, while their better-off brothers and sisters who are properly or more properly, fed, survive? Here, the question "what is proper feeding?" has to be answered. In the first place, it is always mother's milk. Let me say here that the mother who from any reason but a physical one refuses to nurse her child and the physician who sanctions such a course assume a most serious responsibility, one that they should consider well before undertaking. In the second place, proper feeding is any method by which the child's hunger is appeased and by which he is enabled to gain properly in weight and length. It makes no difference whether he be fed by the most scientific percentage method with milk from a Walker-Gordon laboratory, on ordinary milk, on condensed milk or on one of the many pro-

prietary foods so long as he obtains the necessary amount of fat, sugar and proteid.

There is another method of starvation that is often overlooked. I mean sunshine and fresh air starvation. We have at last realized to a very great extent the baneful effects of impure air and lack of sunshine in predisposing to tuberculosis, but we have not yet awakened to the necessity of sunshine and fresh air in rearing our children. As Northrop has well said, the child ought to have fresh air for twenty-three hours, the other hour being taken up with the bath and the change of napkins. While the child is to be allowed out of doors as much as possible, association with children who have diarrhea should be prohibited, as infection may occur from the infantile habit of putting fingers and toys in each other's mouths. The baby should not be carried on long trips in warm weather as fatigue is a very potent factor in the production of digestive disturbances. Before sending a mother with her child to the country, the location of the house, amount of shade, size of rooms, source of milk supply and accessibility to a capable physician should all be considered. In quite a number of cases the child would be better off at home where it can be more comfortable and where it has the advantage of carefully inspected, dairy milk.

All constitutional diseases in the child should be given special attention before the onset of hot weather, as these children are the ones who suffer most from gastro-intestinal troubles. The mother should be impressed with the necessity of having a physician treat any errors of digestion that may occur, however slight they may seem.

Care of the Sick Baby. In all cases the child should be put to bed and kept as cool as possible. If the child is a very young infant, it may be held on a hard pillow but never in the mother's or nurse's arms. The bath is to be given as in health, special attention being paid to the buttocks. After each movement the buttocks are to be carefully bathed, dried and powdered. If there is any excoriation, oxide of zinc ointment should be used. The napkin should be placed at once in a strong solution of boric acid and taken from the room. In no case is a

napkin to be used a second time. While changing the napkin, the baby's hands should be kept out of the discharges to prevent reinfection. It is much better for the same person who attends to the preparation of the food not to have to change the napkins. If this is impracticable, the nurse or the mother should wash her hands in some antiseptic solution which, in cases of infectious diarrhea, should be a solution of bichloride of mercury. If the baby is nursed, the same precautions are to be taken as the mother's fingers are apt to come in contact with her nipple and thus carry infection. In examining a child the physician should not use his own thermometer, but the nurse or mother should have one ready for him. His hands should be carefully washed before and after the examination. Water should be given in as large amounts as the child will take without vomiting. The baby can do without food very well, but does not stand the loss of water at all well. The other organs, especially the bladder and kidneys, should be watched. I have seen several cases where a distended bladder very seriously aggravated the condition. The baby should have rest for body and mind and not be interfered with except when it is absolutely necessary.

Treatment. For purposes of treatment, the diarrheas of infancy may be divided into (a) those due to nervous influences; (b) those due to digestive derangements and (c) those caused by bacterial fermentation and (d) those caused by bacterial infection. Of course, no hard and fast lines can be drawn, as different types will often merge into one another. To distinguish clearly the various types and to make the treatment plain, I have thought it well to give a few of the leading symptoms, especially the character of stool in each type.

(a) *Diarrhea Due to Nervous Influence.* *Acute Nervous Diarrhea.* This form is due to heat, cold, fright or to some reflex nervous disturbance, such as difficult dentition. Appearing suddenly, the symptoms are slight abdominal pain, restlessness and pallor. There is seldom vomiting or marked rise of temperature. The bowels move every half hour or less. The stools at first are normal in consistency, color and odor. They soon

become more watery and lighter in color. There is usually a large amount of gas. *Treatment.* The child should be put to bed and kept there until all diarrhea has been checked. A dose of castor oil or calomel in one-tenth grain doses is to be given as soon as the child is seen. Fairchild's essence of pepsin in drachm doses after each feeding, with paregoric or Dover's powder to control pain, is all the medicine necessary. Hot applications to the abdomen are very grateful to the patient and, perhaps, are of assistance. The old spice poultice may be used instead. The food should be milk with ten per cent. limewater. This form of diarrhea should be checked as rapidly as possible as the intestines are rendered more susceptible to the action of the various bacteria, and more serious forms of diarrhea may result.

(b) *Diarrheas Due to Digestive Disturbances.* There are two forms of diarrhea dependent on faulty digestion. One is due to either too much fat in the food or to a deficiency of the fat-converting secretion of the intestine. This form has been called the *acute duodenal*. The other form is due either to an excess of the food or a deficiency of the intestinal secretion in either quality or quantity lower down than the duodenum. This may be called the *intestinal form*.

1. *Acute Duodenal Diarrhea.* This is characterized by excessive nausea, bile in the urine, jaundice, which is most marked in the conjunctivae, and frequent, clay-colored stools. The only treatment is a reduction or a complete withdrawal of the fat of the food for several days. In the breast-fed, this may be done by giving water before each feeding. If this is not sufficient, the child should be taken from the breast and fed on skimmed milk. The bottle-fed should be given skimmed milk and in extreme cases, separator milk is preferable. Do not give calomel in this form until the trouble is over, as it will only aggravate the symptoms. This type is rare in children under two years of age but does occur occasionally.

2. *Acute Intestinal Diarrhea.* This is due either to too much food or to a deficient amount or deficient quality of intestinal secretion. The onset may be gradual or sudden.

Abdominal pain and vomiting may or may not be present. If present, they usually precede the diarrhea. The stools are loose, rather large in amount, varying from six to twelve in twenty-four hours, and are usually free from much odor. The color is a mixture of yellow, brown and white, the latter being caused by the presence of curds of various sizes. A light green is sometimes seen, but the darker shades of green are not seen unless there be some fermentation. Blood is seldom present and when it does occur it is late in the disease, differing in this respect from the infectious form where it occurs very early. Fever is usually slight or absent. There is usually a gradual loss of weight. The initial treatment of acute intestinal indigestion is to clean out the stomach and intestines thoroughly. Castor oil, if the stomach will retain it, is the best purgative. If the stomach is too sensitive, calomel in one-tenth grain doses, is to be used. All food should be withheld for twenty-four hours. Sterile water should be given for the thirst. Bismuth in ten to thirty grain doses, does good here. If it is not changed in its passage through the intestines, it is well to combine it with sulphur as it does very little good unless it is converted into the sulphide. If there are no signs of fermentation the return to the usual food should be as rapid as possible. It has been my custom to give in this form, bichloride of mercury in small doses, as a preventive measure against bacteria of fermentation. After the first twenty-four hours, milk can be given if it is properly modified. It should contain ten to fifteen per cent. limewater, and have all the elements considerably reduced, and should be given fresh. In the place of milk, weak animal broths may be given for a short while.

(c) *Diarrhea Due to Fermentation. Acute Fermental Diarrhea.* This is the form that we meet so often in bottle-fed babies. It is not so frequent in breast-fed children, the proportion being about six to one. It usually begins very abruptly with high fever, vomiting, abdominal pain and large greenish or greenish-yellow stools accompanied by large quantities of gas. The odor is very offensive, being either sour or putrid, the bowels move very often, sometimes being almost continuous in their

action. In 1906, Tissier discovered that the active agent in the production of this form of diarrhea is the bacillus perfringens and that its most active bacterial opponent is the lactic acid bacillus. Upon this fact is based the modern treatment of this type of intestinal disease. However, it is not so modern, as without knowing the reason for its use, buttermilk, almost a pure culture of lactic acid bacilli, was used in this form in 1876, and has been used at various times since. But it was not until Tissier produced his thesis in the year mentioned that much attention was paid to the treatment of fermental diarrhea by the use of ferments.

Without knowing the reason for the good results obtained, the writer in his work among children in the country had used buttermilk and "clabber" with sugar in this form since 1900 and always with good results where the children would take it, which was not always the case.

Before beginning the use of the ferments it is necessary to clean out the stomach and bowels thoroughly. Here, again, castor oil or calomel is to be given. Personally, I think that the oil is the better and should be given in large quantities and repeated if necessary. All food should be withheld for twenty-four hours, water being given in the meantime. The lactic acid bacilli may be introduced into the intestines in several ways. Tissier used a pure culture in bouillon, of which one to two ounces may be given every four to six hours. The most convenient method is by the use of the lacto-bacilline. These may be given dissolved in sweetened water or be put into the baby's bottle at the time it is given him. This does away with the trouble one sometimes has of getting a child to take the soured milk preparations. Where a child will take buttermilk, it may be given as such or as the artificial preparation, bacillac. Where the nutrient qualities of the milk as well as the therapeutic effects are desired, it is well to use the buttermilk. The lactone tablets furnish another convenient method for the administration of the bacilli. According to Combe, these act only chemically.

If possible to obtain, a good buttermilk made from clean milk is about as satisfactory a method as any if the baby does not

object to the sour taste. Sugar may be added to make it more palatable. The soured milk preparations should not be continued any longer than the specific action of the ferment is desired, as some children do not stand their use for any length of time. If the ferment is used, none of the antiseptic preparations are to be used, for their action will prevent the growth of the bacilli.

Some pediatricists, notably Kerley, La Fetra and several others of New York, do not approve of the use of the lactic acid bacilli, claiming that children do not do at all well on this method. It has been unusually satisfactory in my hands. Dunn, of Boston, in his paper read before the last meeting of the American Medical Association at Atlantic City, reported 172 cases, the largest portion of which were very greatly benefited by the use of the bacilli.

The only other method of treatment that I have found of service is the use of mercury, of which the bichloride is the best preparation. I prescribe it in a solution of one grain to four ounces of water, giving ten to fifteen drops every four hours until the stools become yellow in color and remain so. This is usually the case in from twenty-four to forty-eight hours. Then the dose is decreased, the aim being to give just enough mercury to keep them in this state. Food is withheld from the first twenty-four hours, at the beginning of which the usual purge of castor oil is given. At the expiration of this time, the usual food is resumed but the mercury is kept up for a week or more. Irrigation is done in some cases, but I think in this form of diarrhea, irrigation is generally overdone.

Drugs, other than mercury, are to my mind a failure in the acute stages. I cannot see the advantage of putting bismuth or any of the so-called antiseptics into a gut filled with a large quantity of actively fermenting material. After the diarrhea has ceased, then bismuth in from ten to fifteen grain doses every four hours, does good by its soothing effect on the intestinal lining. In this form, of course, no attempt should be made to check the active peristaltic movement as this is nature's effort towards a cure. It is frequently attempted, however, with most disastrous results in some cases. For this reason opium and the

tannin preparations had better be omitted from our list of remedies. After the stools have become normal in color and odor and only the too frequent movement remains, then we may use opium in the form of Dover's powder in one-tenth grain doses every two hours with benefit.

The food in some of these cases is a difficult problem. If the lactic acid bacilli are used, the usual food is continued. As a rule, the carbohydrate preparations can be given with least damage. There are cases in which we have to neglect the bowel and continue to feed the child regardless of the diarrhea. In all cases the return to the usual quantity of food is to be as rapid as possible. During convalescence, pepsin and nux vomica are useful.

Cases will sometimes be met with that do not respond to either the use of the lactic acid bacilli or to mercury. These cases are to be regarded as mixed infections and had best be treated with the anti-dysenteric serum. Especially should this be done if there be much mucus present in the stools.

(d) *Diarrheas due to Bacterial Infection.* Under this head there are two types, infectious diarrhea and acute gastro-enteric infection.

1. *Infectious Diarrhea or True Dysentery.* This may be secondary to one of the preceding forms or it may be primary. The symptoms are high fever, rapid pulse, prostration and frequent small stools always mucus in character and generally mixed with blood which appears early in the disease. Tenesmus and tormina are usually present. As this form is due to the bacillus dysenteriae, the rational treatment is the use of anti-dysenteric serum. Unfortunately, there are several types of the bacillus and, as yet, there is not a serum directed against every form of infection. To this fact is due the failure in some cases of this method of treatment. However, it should be used in every case. As in diphtheria, the earlier the serum is used the better the results. In ordinary cases, 10 to 20 c.c. every six hours are sufficient; but in some cases, it is better to begin with a larger dose, 30 to 45 c. c., repeated in eight hours. By this method, the mortality has been reduced more than one-half and the individual

cases shortened from four to six weeks to a week or less. I am convinced were the serum used earlier and in larger doses, the results would be still better.

If for any reason the serum cannot be used, the case will have to be treated symptomatically. An initial purge of castor oil or calomel, with abstinence from food for forty-eight hours, is to be given. To relieve the pain and check the excessive peristalsis, opium is usually necessary early. This may be given as paregoric or in the form of Dover's powder, always in prescription by itself. To relieve the tenesmus, cocaine, $\frac{1}{6}$ to $\frac{1}{2}$ grain in suppository, or the opium and starch enema may be given. Hot applications to the abdomen also do good. Here, as in the other forms dependent upon bacterial action, bichloride of mercury is the best drug internally, though bismuth in large doses may be tried. In the acute stages, the bowel should be irrigated twice a day, using a normal salt solution. After the acute symptoms have subsided, irrigation should be done only once a day, and then a solution of bichloride of mercury, 1 to 10,000; nitrate of silver, 5%, ichthyol, 2½% or tannin, 5%. Argyrol in ten per cent. solution may be used instead of the nitrate of silver. Often the discharge of mucus is kept up by the irrigation.

After the primary starvation, food may be allowed. It should always be given as hot as possible, as it is better borne thus than when given cold. According to most authorities, milk should be omitted entirely from the diet list. As no very satisfactory reason has been given, it may be allowed in some cases. Soups, broths, beef teas, Mellin's or Liebig's food, acorn cocoa, racahout, strained oatmeal, farina, arrow root and sage may be given. Of them, I prefer racahout, Mellin's food and the broths. Stimulants are at times necessary, when brandy in small doses, every half hour, should be given. As a tonic during convalescence, nux vomica with hydrochloric acid does good. A trip to the country for several weeks is of great benefit.

In cases of infectious diarrhea, the same precautions as to food, table utensils, linen and the discharges as in typhoid should

be taken. The room should be well screened against flies and no other children admitted.

2. *Acute Gastroenteric Infection. Cholera Infantum.* This may appear suddenly or be secondary to one of the preceding varieties. The leading symptoms are high fever, rapid pulse, excessive vomiting, frequent choleriform stools and collapse. There are two indications for treatment—to combat the toxemia and to supply the loss of fluid. The stomach should be washed out thoroughly, using the normal salt or a soda solution, one drachm to the quart. After rinsing the stomach, it is well to leave from four to six ounces of water in the stomach. The solution should always be used warm. Personally, I prefer introducing the tube through the mouth instead of the nose. The bowel should be irrigated with a hot solution of salt unless there be hyperpyrexia when the solution may be used cold. Ice water has been advised by some authorities, but I think that the risk of producing fatal collapse is too great. If used at all, it should be done by the physician himself and the effect carefully watched.

To combat the loss of fluid, hypodermoclysis should be resorted to, care being taken to have the apparatus sterile and not to inject more than one drachm for each pound of body weight in fifteen minutes. This may be repeated in four hours.

After the stomach and bowels have been washed out, morphine 1-100 to 1-20 grain with atropine 1-250 may be given every two hours to check the vomiting and excessive peristalsis. This should be given by the physician and effects carefully watched. The hyperpyrexia should be treated with hydrotherapy. Stimulants are early called for, of which brandy, in small doses frequently repeated, is the best. Port wine and claret may also be given. The only other drug that I have ever seen do good is mercury, either as calomel placed on the tongue or as bichloride in 1-100 grain doses every two hours. If collapse be present, the child should be placed in a pack the temperature of which is 100° and kept at this by pouring on hot water every twenty minutes. At the same time, hypodermoclysis should be given, to which caffeine, 1-6 to 1-2 grain, is added. Ether and camphor may be given hypodermically. Alcohol should

not be given in this stage. If the hot pack is not used, a hot mustard bath should be given, the child being kept in the bath until the attendant's hand is reddened. In using either the hot pack or the bath, cold cloths should be kept on the child's head. The ears should be stopped with cotton during the bath and the eyes, if open, as they generally are in this condition, should be covered with moist gauze. Food, as a rule, does not enter in the treatment of the acute attack, all efforts for the first twenty-four hours being directed to keeping the baby alive. After the acute symptoms have subsided, the return to food should be very gradual. For the first few days, lavage with a partially digested food every six hours is better than feeding in the usual way. During convalescence, nephritis and typhoid conditions are to be treated as they would be under other circumstances.

In conclusion: See that the mother is prepared to nurse her baby and insist on her doing so.

See that the baby is properly nourished and is in a good condition to stand the hot weather.

Treat all constitutional diseases before the heated term.

Regard every attack of indigestion as a beginning diarrhea, and

Don't starve the baby while he is sick.

Don't drug him unnecessarily and without a definite aim in view, and

Don't let him die for want of water.

AN UNUSUAL TYPE OF BEGINNING GANGRENOUS STOMATITIS IN AN INFANT.

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The following case of stomatitis occurring in an infant of four months presents unusual features and may be worth recording. Henoch in his lectures on Diseases of Children mentions two varieties of severe stomatitis—ulcerative and gangrenous. The former is nearly always associated with teething; the latter usually occurs as a sequel to one of the acute infectious diseases amidst unhygienic surroundings. In both cases the mucous membrane is first involved; sometimes the ulcerative type develops into the more severe, and usually fatal, gangrenous type.

In the present case the age of the patient—four months—is unusual; the severer types of stomatitis occur especially between the ages of two and twelve years.¹ Primary dentition had not as yet set in; there was no history of any acute infectious disease or of mercurialism; the surroundings were not such as to call for censure. The case occurred on a farm and there was no history of illness among the cattle.² The child was bottle-fed and had no evidence of rickets or scurvy; he was anæmic but was well grown and sturdy. The acute onset and the great local reaction showed the infection, whatever its nature, to have been local and not constitutional in origin. Unfortunately I was not so placed as to be able to take cultures of any micro-organisms which may have been present.

¹ Goodhart and Still: Diseases of Children.

² Erichsen's System of Surgery, tenth edition, vol. i.

The patient, aged four months, was seen on April 30th, 1908. The history as obtained was that on the previous day (the 29th) he had been ill or very bad tempered all day; in the evening it was noticed that the cheek was a little swollen; by the next morning (the 30th) this swelling had undergone considerable increase in size. On examination the left cheek was seen to be very swollen and the skin was shiny; the swelling was not localised. The cheek was very hard and tense, no pitting could be obtained, it was extremely tender, and a slight touch produced a shriek. The inside of the cheek was dusky, and about half-way back on a level with the alveolar border of the lower jaw there was a small patch of about the size of a No. 4 shot, dusky grey in color, which had the appearance of threatening gangrene. There was no specific odor attached to the breath, but it was foul. The glands in the neck on that side were enlarged and tender; any lateral movement of the head produced pain. The skin of the neck was œdematous as also was that of the scalp, especially over the occipital region. The temperature was 104.6° F. and the pulse was uncountable (probably 160). The diagnosis arrived at was that it was probably a case of early gangrenous stomatitis. Surgical interference was mooted but was refused. Accordingly I ordered a lotion³ for frequent application to the interior of the cheek, giving at the same time two grains of bromide of potassium every two hours for six hours, subsequently every four hours. On the next day the cheek was not so swollen or tense, but the eye was closed by the œdematous lids. The inside of the cheek had lost its dusky color; the dusky grey spot had disappeared, its site being occupied by a small zone of hyperæmia. The breath was not so foul. The cheek could bear a moderate amount of manipulation; the glands in the neck were not so tender, and the œdema of the scalp was not so marked. A slight cough was present but there were no physical signs. The temperature was 103°. The child was taking a little milk. On May 2nd the temperature was normal, the cheek not so

³ ℞. Chlorate of potash, grs. x.; gly. acid bor., ʒ iss.; aq. ad., ʒ i.; m. f. lotio.

swollen, the œdema of the eyelids was disappearing, while that of the neck and scalp had gone. The child was taking his food well and was rapidly approaching convalescence. By May 4th the external appearance of the cheek was like a chronic superficial abscess pointing; there was a localised swelling of about the size of a hazel-nut, the skin over it being congested, but the swelling was solid in character. The child was taking its food well and sleeping well. The swelling gradually diminished in size, and by May 7th the cheek was normal. The child has subsequently remained in good health.

Recovery occurring without any loss of tissue negatives the view that it was a case of gangrenous stomatitis, and I have been unable to find any reference to cases of threatening gangrenous stomatitis undergoing spontaneous cure in the literature at my disposal. There was no evidence of its being a case of ulcerative stomatitis. When first seen it seemed very improbable that such a young child would make a perfect recovery from such an acute infection and in such a short space of time.

Guernsey.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY.*

Meeting of May 27, 28 and 29, 1909, Held in Lenox, Mass.

The President, Charles P. Putnam, M. D., of Boston, in the
Chair.

PRESIDENT'S ADDRESS.

Dr. Putnam said that the few words he had to say were in line with the addresses to follow on "The Position and Work of the American Pediatric Society Toward Public Questions." Physicians should take up a share of the work of public institutions for children in their own communities. Public institutions for children were in fact, to a great extent, great hospitals for chronic patients. The State's children, whether juvenile offenders, truants, dependents or neglected children, should not be taken as being on the whole healthy and normal. Unsanitary influences in the home are often responsible for the dependency and delinquency of children. Twelve years ago three unpaid boards of seven persons each were created by the General Court of Massachusetts to take charge respectively of the insane, paupers, and children's institutions of the city of Boston. To the latter department four separate divisions and several classes of children were handed over; the Marcella Street Home and Alms-house for children with 321 inmates; the Parental School and School for Truants with 149 inmates; the House of Reform with 144 inmates; and a large placing-out department. When they took charge of these institutions they had no conception of the great opportunity for betterment which was at once presented. He described the conditions found in these institutions and sketched what had been done for dependent children in the city of Boston. Work of this kind was demanded and it was incumbent on them to take their share of it.

*By permission of the Editor-in-Chief Amer. Jour. Obs. and Diseases of Children.

THE POSITION AND WORK OF THE AMERICAN PEDIATRIC SOCIETY
TOWARD PUBLIC QUESTIONS.

Dr. Thomas Morgan Rotch, of Boston, appealed to the Society to aid by its influence in safe-guarding early life. The chief point which should be aimed at would be to persuade the investigators who were doing such good work all over the country in connection with the different phases of early life that they did not know sufficiently all of the different sides of the various questions connected with children to allow them to control all of the work themselves. Many workers who were trying to reform the laws in connection with child labor should understand that their great efforts were appreciated by the medical profession. Children had been rescued from the mills and the various kinds of labor which they were made to perform before they were ready for it, then it was the province of the pediatricians to decide what those children were able to do. After this had been decided, it was the province of the legal profession to inform the legislators what laws should be made for the preservation of the child's health and proper development. This same reasoning applied to those who had charge of grading the schools and kindergartens, and also the physical sports, both of boys and girls, during their different stages of development. He then explained that the old methods used to determine at what age the child should be in the various grades in schools and when he should work, for instance, in the mills, had mostly depended upon the chronological age, as well as upon how the child looked on account of his height and weight. Dr. Rotch then said that children differed, even though they were of the same age, in both physical and mental development. As for judging by means of the chronological age, the results varied and were very elusive. The judges of criminal courts, and lawyers, in various cities, had told him that it was exceedingly difficult to find out how old children really were. A law might be made that a child must be so many years old before being allowed to work in the mills; and yet the mills were found to be filled with such children who were under the age limit. The reason for this was that false returns were continuously made and, in

many cases, there was absolutely no record of when the child was born. Under these circumstances he allowed that height and weight differed in a chronological point of view by as much as one year and a half, and it was impossible to keep children out of the mills in a State where, for instance, the law said fourteen years, because although perhaps only twelve and a half years old the child seemed fourteen. For four years he had been endeavoring to obtain some more exact index, not a chronological age, but one of development. It was his intention to be able to decide when a child should work in the mills by determining whether he had proper strength derived from adequate development for such work. He explained that the osseous system corresponded to the steel frame work of a building; that the stronger and more perfect and the higher stage of development of the osseous system the greater the strength and the greater the resisting power of the child. He did not in any way ignore muscles and the condition of the various organs and the physiological conditions of childhood, but they were accessories to the skeleton, just as plaster, roofing and boarding-in of a building were necessary to make a good building outside of the steel framework. He wished to present to the Society for their consideration what he called an anatomic index. The development of epiphysis presented an important part of a child's development so far as his strength was concerned and showed what stage of development he was in. These epiphyses could be studied in all joints, whether of the shoulder, elbow, knee or ankle, but the joint that was the easiest to reach and most practical for forming the anatomic index was the wrist. Out of some thousands of cases of children carefully studied with the Roentgen ray, children who were believed to be normal after it had been proven that they had had no disease which would interfere with the development of the joints and in whom the physical conditions seemed to be normal, it was shown that in the vast majority of cases the normally developed wrist developed with the other joints. He, therefore, presented to the profession as an anatomic index the development of the wrist. This development could be carried on in successive grades from birth to fourteen years by making

use of the appearance of the osseous centers of the carpal bones and the epiphysis of the radius and ulna. Having once made a division, for instance, alphabetically from "a" to "m," the radiograph could be taken of the wrist of the child, and this picture would represent the stage of the child's development. This classification for development could be used for all ages. In this way they could determine whether the child was ready to enter kindergarten, or into a grade in the school and keep the place, or what strain in athletic contests he should be allowed to undergo, and finally what forms of labor and work he was ready to perform. An index of this kind, instead of having to depend upon the ignorance or truth of the parents and guardians, would be entirely in the hands of the physician. Dr. Rotch spoke of the excellent work of Pryor, of the State University of Kentucky, and said he had been much encouraged when he noticed that his observations tallied with his own. Pryor had pointed out, and Dr. Rotch found it to be true in his investigations, that the development of the epiphysis, especially as seen in the osseous centers of the wrist, varied in different races and in different families, but that members of the same family have much the same development. The development of girls, however, in the early period of their existence, surpasses that of the boys of the family. This meant that the osseous centers of the carpal bones and epiphysis of the radius and ulna appeared earlier, perhaps as much as one year, in girls than in boys. It was also noted that twins had the same development for the same sexes. Dr. Rotch said he wished to impress upon the Society that in no way did he ignore other means of determining whether the child was ready to work or not, or to enter certain grades in school; the development of muscles and the functions of organs should be taken into account. The different stages of development should be grouped at different periods by which to regulate the different phases of a child's life and safeguard strength. The precocious child with an undeveloped body should not be allowed to push upward in the grades in the schools; such an individual should wait until his development equaled his mental condition. Although in the future some better index might be found, all his

investigations, supported by the work of Pryor, pointed toward the anatomical conditions at the wrist as being the best. He also stated that Dr. Crampton's investigations of the anatomic index of the pubic hair should point to the fact that the chronological age, as a guide in these matters, should in the future be put aside. He believed, however, that it should be retained for certain legal questions. Dr. Rotch showed a series of pictures of the development of the wrist and how certain pictures of development corresponded to the kindergarten age partly, to the school age partly, to the athletic age, and partly how to decide upon different forms of labor. He also showed how he had investigated the findings in joints to determine whether there had been any inflammation in the joints. Such cases should be thrown out, even though the joint becomes normal again for the reason that the congested condition of the joint caused the osseous centers to develop more rapidly in that joint than in others. Therefore, unless this be taken into account, the idea of the anatomic index would be defeated. Dr. Crampton's work showed most conclusively that the chronological age should not be used. The influence of the Society should be brought to bear upon educators as well as upon labor committees to influence them to look at the work which they were engaged in from some point of view other than their own.

THE NEED OF, AND THE RELATION BETWEEN, A DEFINITE ANATOMIC DEVELOPMENT AND THE ATHLETICS
OF EARLY LIFE.

Dr. Samuel S. Adams, of Washington, said that the American Pediatric Society had never taken the stand that it should have taken in national affairs. Having been intimately connected with legislation, constructive as well as obstructive, for the past thirty years in the Capital, his observation had been that the medical profession was more apt to be engaged in obstructing legislation than in the construction of laws. If there was in any society a body of men competent to speak upon questions relating to children from their birth to maturity, it was this body. They should assume the position they were entitled to, and speak

with authority on questions of public interest on the health and development of the child. They should take a decided stand in regulating the time at which a child should enter athletics in primary and in high schools and colleges. They should have a general supervision over the children until they were sixteen or eighteen years old. They should examine the children and advise the parent whether or not the boy should engage in baseball or the girl in basketball. In questions of this sort, such as concerned the child's health, whether of national or local import, the medical man was the one to step forward.

THE NEED OF, AND THE RELATION BETWEEN, A DEFINITE ANATOMIC DEVELOPMENT AND THE GRADING OF KINDERGARTENS.

Dr. Isaac A. Abt, of Chicago, believed that the anatomic index offered a possibility of great value in estimating the child's developmental condition. There were different kinds of kindergartens, and results depended as much upon the kindergarten teachers as upon the children. He believed that this work would be a great help in estimating the developmental condition of the child; some accurate index was very necessary; as yet they had no way of estimating the physical status of a child in the kindergarten; before sending a child to the kindergarten they had as yet no method of estimating the physical development, and he thought that if the anatomic index of children in the kindergarten was controlled by a fatigue curve, it might be valuable. In the idea of getting legislature to interfere, rushing headlong into the political arena, he did not think they are right; they had better find out how they stood in regard to Dr. Rotch's work. It was hardly the province of the Society to get tangled up in politics or political affairs. They should attempt to stimulate scientific work and keep out of the political arena.

THE MEDICAL WORK IN THE JUVENILE COURT OF CHICAGO.

Dr. F. S. Churchill, of Chicago, read a paper which was based on the examinations of 2,758 children appearing before the Juvenile Court during the last year. He divided them into the dependent and delinquent groups. A dependent child was one

who had not had efficient care. A delinquent child was one who had transgressed the law. Seventy-seven per cent. were of foreign-born parentage. Among the dependents 90 per cent. were Americans, Germans, Polish, Italian, Bohemian, and Jewish. Among the delinquents 95 per cent. were the same plus Norwegians and French. In proportion to the total population the Poles lead. They paid especial attention to height, weight, chest girth, condition of the tonsils, adenoids, condition of the eyes, ears, teeth, heart, lungs, skin, and the frequency of venereal disease. Very little organic disease was found, but striking data were the high percentage of carious teeth and enlarged tonsils, cervical glands, defective eye-sight, ear affections, and frequent gonorrheal disease among the girls. There were practically no acute diseases because the probation officer was not allowed to bring any sick child to the court dispensary and, therefore, the spread of disease was prevented. Among the dependents, both boys and girls, during their earlier years, ran closely to the normal, although a little below. But among the delinquents the older boys and girls were very much below the normal. This showed the strain and the stress of life was beginning to tell even before the age of puberty. The exception to this general observation was the weight of sixteen-year-old girls; they averaged twenty pounds heavier than the normal girls. This was due to the fact that all these girls were handsome, well formed and very attractive to men who caused their downfall.

Dr. Rotch said that what he presented was only one factor of a problem which must be worked out step by step. He did not see why they should not take up one factor of the problem and see whether it was right or wrong. As to devoting themselves entirely to medical subjects, it seemed to him that all over the world it was recognized in the great teaching centers that prophylaxis in children was a great part of the work of the medical profession. To say that this is not medical work was wrong. He believed it was their duty to give their knowledge to the public. It was as much a medical as any scientific article *Dr. Carr* could write on the subject; it was *prophylaxis*. He did not see how they could call what he offered them as sociological; they

were absolutely medical facts. In New York there were 10,000 children taken from the sweat shops and mills, and this was done by a good set of people, and they should be told by the physicians just what should be done with these children. They were not entering politics; how were the judges and lawyers to decide what was best for these children unless they told them? Some one must say what should be done with these children, and who could do it better than they? Height and weight were elusive; statistics were elusive and misleading; such statistics would not be used at all if a better method was found. They were behind the times if they kept on using such statistics and if they did not use what was shown to be better. Prophylaxis was a great part of medical work of the future.

A FEW OF THE THINGS WHICH THE PEDIATRIST SHOULD TEACH.

Dr. P. J. Eaton, Pittsburg, made a plea for common-sense teaching of pediatrics. Children were born, as a rule, healthy, and yet many died before the age of three years; the moral, physical and mental training of these children should begin with birth. Babies had certain rights; they had a right to live and to be comfortable and grow, and this all depended upon certain rules which should be enforced from birth. The babies should have accurate and regular habits; they should be taught to employ certain functions, to feed at certain intervals, etc. It was easy to teach a young baby to defecate regularly. Taking a bath, followed by a meal and then a nap was very simple, but it was worthy of teaching. The children, too, should be taught to sleep. It was said once that "she who rocks the cradle rules the world"; now it was "she who rocks the cradle spoils the world." The Lord knew best when He made breast-milk for babies. Mothers and nurses should be taught what good milk was and where it could be obtained, if the breast-milk was not obtainable. The mothers should be taught that the advice of a skilled medical man was far superior to what was found in printed books. The less the baby was handled the better. He asked that more sensible clothing should be made for the baby, that more fresh air should be given the growing child in order that he might have plenty of oxygen for metabolism. After the first few days of

life the child should be in the open air, and he should sleep where there was a free flow of outdoor air in abundance. As the child grew the question of diet became a live one. A good rule to follow was that "things which need chewing require teeth for grinding." Some believed it to be a crime to put the lancet to the gums; teething was a physiological process when it was normal; if normal there should be no interference, but if the gums were tough they should be cut. To sweeten a child's disposition often nothing was better than to lance the gums.

A CASE OF CEREBRAL HEMORRHAGE (BIRTH) WITH OPERATION.

Dr. Frank S. Meare, of New York, reported the case of a child delivered by a difficult forceps operation. The child was born asphyxiated and was with difficulty resuscitated, but became of good color. That same evening there was found a facial palsy of the left side; the left arm was rigid, and the hand was flexed at the wrist. The left leg was rigid, and the knee-jerk was exaggerated. There were convulsive movements, especially of the upper part of the body. Thirty hours after birth the color was still good, the pulse strong, and the child cried a good deal. The next morning the child was cyanotic, and *Dr. Taylor* was called in. Operation was decided upon. A clot was found and removed. No improvement followed and the child died one hour later. The postmortem showed that in addition to the clot that was removed at operation, there was an extension of it along the fissure of Sylvius.

Dr. Alfred S. Taylor presented the specimen which showed that the beginning of the hemorrhage was around the outer end of the Sylvian fissure; there was an extension of the clot, however, through the fissure of Sylvius toward the base of the brain and an extension forward under the frontal and backward to the temporosphenoidal lobes, and a particularly marked extension downward to the front surface of the hind-brain.

The cases he considered best for operative interference were those in which the clots were confined to the upper surface of the brain. The best evidences of the presence of clot would be the focal symptoms of the motor apparatus. When the clot was situated at the base of the brain there would be pressure

upon the vital centers, and respiration and circulation would be influenced. To obtain the best results one should operate at the earliest possible moment.

Dr. John Lovett Morse, Boston, said he had been struck by the irregularity of symptoms in these cases, and especially by the late development of symptoms. He always thought that they appeared within the first ten or twelve hours, but there were reports of cases in which the first symptoms appeared on the third or fourth day. We should remember, too, that there were other conditions which gave symptoms of a similar nature, of cerebral pressure. One should be very cautious in making a diagnosis of cerebral hemorrhage in the new-born. It was a serious thing to recommend an operation for cerebral hemorrhage when a dose of castor oil would clear up the symptoms. A bulging of the fontanelle indicated cerebral hemorrhage. Another symptom he had not seen mentioned was the flowing of blood from the nose or from the back of the throat, the blood presumably coming through the cribriform plate of the ethmoid bone. In doubtful cases resort might be had to lumbar puncture.

Dr. Holt said that when one saw these children when twelve or fourteen months old or older, with symptoms resulting from cerebral hemorrhage occurring at birth, one felt justified in doing anything; yet he agreed with Dr. Morse that the difficulties of diagnosis were extremely great. In the first place all these hemorrhages were very profuse, and one could not be sure at operation that all the clots were removed. The bulging of the fontanelle was the best single symptom in diagnosis. No importance should be attached to the bloody fluid in lumbar puncture. They should have localized symptoms; but when the symptoms were general, as rigidity and convulsions, they were very much in the dark. In some cases operated upon, nothing had been found.

DANGER TO THE NEW-BORN FROM GAS HEATERS.

Dr. E. W. Saunders, St. Louis, said that in many houses no provision was made for the ingress of fresh air or the egress of foul air, and it was hoped the builders of houses would be in-

fluenced in correcting this. The apartment house was inimical to an increase in the population; gas heaters were also inimical to the life of the newly-born. Many cases of atelectasis might be due to carbon monoxide poisoning. He reported the case of a nurse and baby sleeping in an air-tight room with a movable gas heater burning all night; death resulted from the generated carbon monoxide gas.

Dr. Adams reported the case of a government clerk who returned home from his work to find his mother, his wife, and baby dead, a cooking stove in the room had been burning and all three had died of carbon monoxide poisoning. The wife was evidently cooking and was taken sick; the mother was found in a kneeling posture over the woman with a bottle of ammonia at her side. The baby was in a cage on the floor dead. There was great danger in the creation of carbon monoxide as shown by the experiment of the Agricultural Department; it was known as the "back-fire." If certain stoves had no protector, and if the fire was lighted and went out, and then relit, there was great danger of carbon monoxide being created.

(To be continued.)

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

INFANTILE MALARIA.—The Sixteenth International Medical Congress held its formal opening meeting on Sunday, August 29th, at 11 A. M., in the banqueting hall of the Municipal Festival Hall. Section of Diseases of Children, President, M. J. de Bókay; managing secretary, M. P. Heim.

DR. J. P. CARDAMATIS (Athens), read a paper on infantile malaria, a subject which is, of course, of particular importance in Greece at the present day. He began by pointing out that children at the breast are less attacked with malaria than at any other age, infants during the first year of their age enjoying a great comparative immunity. During the second year of life the liability to attack is not much increased, but between the ages of from two to seven years, and for some reason or other especially between the ages of from two to three, children are particularly subject to the poison of malaria. Dismissing with a few words the idea that paludism of the mother could be congenital or, indeed, that it could have any particular influence on the health of the foetus, Dr. Cardamatis pointed out that we are constantly led to believe the placenta to be furnished with anti-toxic material which resists the development of the maternal hæmatozoa, destroying them at the surface of the placenta. Both among nurslings and little children there is great variation in susceptibility to malaria, the same natural immunity being met with as prevails among the indigenous inhabitants of tropical regions, though perhaps on a somewhat lower scale. Contrary to what has been affirmed by Plehn, the form of paludism which confers immunity does not always result in anæmia. The natural immunity which has also been observed among children entirely differs from that relative immunity mentioned by Koch, which is due to a great frequency of infection during childhood. It differs also from that immunity which has been observed by Celli in the environs of Rome, and which is attributed to the periodical development and exhaustion of intensity of epidemics. Both the child and the adult in Greece are most frequently attacked with ætivo-autumnal malaria of the tertian type.

INCONTINENCE OF URINE.—PERRIN (*British Medical Journal*, March 6th, 1909), describes the different varieties of urinary incontinence, which, he points out, ought to be distinguished from one another, incontinence being only a symptom and not a pathological entity. The most frequent form is enuresis, generally occurring in infants and young children. In this form the incontinence is confined to night and the period of sleep, no inconvenience being experienced during waking hours. The only exciting cause which is present at night and absent during the day is the condition of profound sleep in which the subjects of this symptom are usually found. This sleep is of the nature of stupor, and it may be explained by the fact that it generally coexists with adenoids, nasal polypi, goitre, etc., and is cured when these are removed. Insufficient aëration of the blood produces a state of lethargy in the patient, the cerebral centre being rendered less sensitive. In that condition the call to empty the bladder gets no farther than the medulla, where it is translated into action without the restraining influence of the brain. If the removal of the obstructing cause is not sufficient, the faradic current will succeed in re-establishing the forgotten connection between the brain and the bladder. Incontinence occurring during the day as well as at night is generally found to depend on some amount of cystitis, caused either by microbes or by a mechanical cause, such as phimosis. In the adult the symptom may arise from an enlarged prostate, locomotor ataxia or general paralysis, intraurethral tumor, hyperdilatation of the urethra, displacement of the bladder, or injury to the vesical sphincter.

THE CAUSES AND SYMPTOMS OF SIMPLE CHRONIC ULCER OF THE STOMACH IN CHILDREN.—(*La Clin. Infant., The British Journal of Children's Diseases*). PARMENTIER and LASNIER made this important communication to the Soc. des Hôpit., December 18, 1908. Chronic simple ulcer of the stomach in a child is so rare that such authors as Wiederhofer and Kundrat doubt its existence, while Rokitsansky declared he had never met with it under the age of 14 years. Brinton only found it twice

in 226 autopsies below the age of 10 years. Only about twenty cases have been recorded. The seat of the lesion does not differ markedly from that which holds good in adults. In nine autopsies the ulcer was six times in the pyloric region, three in the lesser curvature, four on the posterior surface, either cardiac or pyloric, once on the anterior surface near the cardia and once on the greater curvature. More than one ulcer was present in some cases. In sixteen cases, seven were boys and nine girls, aged from $2\frac{1}{2}$ to 14 years. As to probable causes, bad feeding and acute gastritis take the first place. In the authors' case the girl had measles and chickenpox between the age of 3 and 4 years, and gastro-enteritis in her first year. She was badly nourished, took only five feeds daily, and at the age of 9 months was put on cow's milk, which soon caused a diarrhoea which lasted several years. At two years broth was given in addition and a few weeks later she took what the others ate, *café au lait*, vegetables, stewed and boiled meat. Ulcerations due to swallowing caustics are not rare in children, and a foreign body, such as a coin, may produce the same result. Such ulcers may pass into a chronic form. The symptomatology is relatively rapid as in old people, so that in the majority of cases the affection is only recognized at the autopsy or the operating table. In characteristic cases, as in the authors', the affection begins by a phase of vague digestive troubles, perhaps subsequent to a gastro-enteritis and sometimes attributable to bad feeding. Then a dull pain ensues, sometimes continuous, sometimes paroxysmal, rarely going through to the back; pressure in the epigastric region provokes the pain. Dyspeptic troubles consist in modifications of appetite characterised by periods of anorexia following fits of hunger, in vomiting, biliousness and constipation, more rarely diarrhoea. Acid regurgitations were well marked in one of the authors' cases. Hæmatemesis, so important from a diagnostic point of view, was wanting in two-thirds of the cases terminating in death and verified by autopsy; it sometimes follows violent exertion and may be bright red or coffee-colored. The general health is in relation to the intensity and frequency of the painful attacks.

PERICARDIAL ADHESIONS OF TUBERCULOUS NATURE AND CIRRHOSIS OF THE LIVER IN CHILDREN.—HUTINEL describes a somewhat rare condition in which a tuberculosis of the bronchial and mediastinal glands is communicated to the pericardium, producing adhesive pericarditis. Later cirrhosis of the liver follows, accompanied by ascites, and a fatal issue from heart failure ends the case. He calls it cardio-tuberculous cirrhosis. It begins somewhat insidiously with bronchitis and wasting. At other times it is more acute, and begins with a pleurisy. Hypertrophy of the liver follows, the consistency of the organ being firm. Then appear circulatory troubles. The lips become cyanotic and the face violet, as in congenital heart trouble. There is dyspnoea, but no cardiac signs can be elicited. The urine is abundant and albuminous. The tuberculous condition has remained latent, and it is the liver signs that attract all attention. The pleura and pericardium are adherent, and the heart apex does not move with the beat. Treatment has so far failed to prevent a fatal issue.—*Le Bulletin Médical*.

IRREGULAR FORMS OF TUBERCULOUS MENINGITIS IN CHILDREN.—In the evolution of tuberculous meningitis in children it is usual to distinguish certain well-known stages, such as the prodromal period, the period of excitement, that of tremors, lastly the paralytic stage. Without changing the classification or adding to the subdivisions, GOUJOUX of Montpellier and JOSEPH-OVITCH of Odessa describe certain forms which do not come under these headings (*Ann. de med. et de chir. infantiles*, April, 1909). One form starts quite suddenly without any prodromal period; this is the acute or apoplectic form. The second group consists of those cases where the chief characteristic is the presence of local symptoms. The third group consists of those cases in which a single symptom, such as sleep or delirium, preponderates, or in which there are general symptoms such as typhoid. In the *acute or apoplectic* form the child suddenly vomits, or has convulsions without apparent cause, delirium rapidly comes on and death follows. The rapid destruction of part of the cortical substance of the brain explains the character-

istic signs of this variety. In tuberculous meningitis with *local signs* the clinical signs are not reflected by the anatomical lesions. Whether they can be accounted for by the lesions proved at the necropsy, or are due to cortical compression by excess of fluid within the membranes, is an open question. But whatever the pathological interpretation, this variety occurs as often in adults as in children, whether the signs come on suddenly or by degrees. These signs are hemiplegia, monoplegia, aphasia, convulsions, attacks of Jacksonian epilepsy, or tetanus. More complex still are the forms associated with chorea and athetosis. Spinal and cerebro-spinal meningitis is characterized by the intensity of the contractions, radiating pains, and exaggerated knee reflexes; but one typical case is referred to in which there was retention of urine, with total loss of ankle and knee jerks. When sciatica is present it is double. When the affection starts at the lower end of the spinal cord, there may be paralysis of sphincters; fever follows, the lesion ascends, causing death with the many signs of basilar meningitis. In the third group, in which one symptom or one group of symptoms preponderates, the frequency of the symptoms occurs in the following order: Somnolent, delirious, gastro-intestinal, typhoid types. The somnolent form is said to be characteristic during the first year of life, but the authors insist that it occurs not less frequently in the second and third years; it is usually described as the form which occurs towards the end of chronic phthisis; but as a matter of fact it may be the prevailing symptom in any form of tuberculous meningitis; it may occur alone or associated with headache, vomiting and constipation; there may be laryngeal spasm, hemiplegia, or diarrhoea. The delirious form occurs chiefly in summer. The patient talks much, but unintelligibly. There are hallucinations: he sees animals such as flies, which he tries to catch; there is a wild look in the eyes. All these signs make the nature of the case unmistakable. The form accompanied with diarrhoea should be classified with the typhoid variety.

BOOK REVIEWS

DIAGNOSTIC METHODS, Chemical, Bacteriological and Microscopical.—A text book for students and practitioners, by Ralph W. Webster, M. D., Assistant Professor of pharmacological Therapeutics and Instructor in Medicine in Rush Medical College, University of Chicago; Pathological Chemist at Cook County Hospital, Chicago. 600 pages with 37 colored plates and 164 other illustrations in the text, cloth binding \$6.00 net. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia, Penn.

The author makes no claim for originality except, possibly in the matter of arrangement of subject-matter and selection of methods and ideas which have been established by others after years of earnest research. He presents the subject-matter in such manner that it is readily and easily grasped by the student or physician saving them the tiresome task of sifting the tares from the wheat. The following will give some idea of the scope of the work.

Chapter No. 1 comprises physical and chemical characteristics, macroscopic and microscopic examination of the sputum. Chapter No. 2 is devoted to the diagnostic methods of examining the secretions of the mouth, nose, ears and eyes. In Chapter No. 3 the author gives instructions for examining the stomach contents, macroscopical, microscopical and chemical. Chapter No. 4, the feces are considered, and Chapter No. 5 includes a general consideration of parasites, trematodes, nematodes, and parasites of the skin. The next, Chapter No. 6, follows with a very readable and lucid brochure on the examination of the urine, its physical properties, chemical constituents, and microscopical examination, covering in all nearly two hundred pages. Next follows chapter 7 on the secretions of the genital organs, both male and female. Chapter No. 8 of more than two hundred pages is devoted to the examination of the blood. This chapter

is a very valuable one and the student or physician who follows its teaching will be enabled to develop much skill in this line of work. Chapter No. 9 is devoted to transudates and exudates, and the volume closes with a general consideration of the mammary glands, their secretions in health and disease.

In this handy practical volume the author has brought together, for the use of the student and practitioner, the generally accepted facts in reference to the laboratory phases of clinical medicine, which may be more closely studied by the application of laboratory methods. He emphasizes that laboratory work must go hand in hand with the more direct clinical examination of the patient. The aim of the author seems to be to present the direct bearing of the various methods outlined upon the clinical history of the case and to point out the special interpretation of the findings of any given case. Particular attention is given to the selection of methods, both for the simpler clinical and more complex scientific requirements.

The profession should accord this book a warm reception, since it covers a subject of momentous interest to the diagnostician. It comprises an excellent working manual for the study of diagnostic methods and presents the newer laboratory methods of diagnostic science in a unique and interesting manner.

TREATMENT OF THE DISEASES OF CHILDREN.—By Charles Gilmore Kerley, M. D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital, etc. Second revised edition. Octavo of 629 pages; illustrated. Philadelphia and London: W. B. Saunders Co., 1909. Cloth, \$5.00 net; half morocco, \$6.50 net.

For some time we have been expecting a new edition of this splendid work on pediatrics, and are gratified to see the new work, which represents the digested experience of the author's professional career, extending over many years' work in both hospital and private practice. The work is presented at the request of the author's students, with the aim and hope of supplying the student and general practitioner with a ready reference

work on Pediatrics. The means and methods advocated are the results of the author's experience based upon the extensive application of the methods taught, and verified in his extensive experience.

During the past decade the possibilities of therapeutic measures in the treatment of diseases of children have greatly increased and now modern methods supersede the teachings of a few years back. The author devotes considerable space to symptomatology, and gives due consideration to prophylactic, therapeutic and dietetic management of the little sufferers. He realizes that without a diagnosis of the morbid process and of its evolution, and without the application of its influence on the patients, no rational therapy can be thought of, and consequently pains have been taken to write clear, brief statements of differential diagnosis. It is in truth a text-book for the general practitioner, very explicit in instruction on the doses of drugs, contains a number of prescriptions, and offers the well-informed medical man a repertoire of the science and art of pediatrics while conveying knowledge to the beginner in the most concise shape.

We find it impossible to criticise this work in detail, for the review would be as large as the book. This volume is one to keep on the nearest book-shelf, to consult in moments of difficulty. The publishers realize the great worth of the volume and give to it all the art in book making for which they are justly famous.

PEDIATRICS

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Vol. XXI

NOVEMBER, 1909

No. 11

EDITORIAL.

"CASTRATION AND MASTURBATION."—The foundations of the modern social structure, the maintenance of the family, and the continuance of human life rest on the integrity of the sexual instinct. Its perversion and its misuse are the most virulent factors in the disintegration of the individual and the race. Practically all of the lower animals with penile generative organs masturbate, and it is not to be wondered at that the human child soon learns that pleasure can be found in genital titillation. Fortunately for most the habit of masturbation is practiced in

moderation and when years of reason and control are reached either abandoned or only occasionally indulged in. For a few, however, it proves a curse and in the case of children the pertinent question arises—what is to be done? We desire, however, to limit the discussion to the subject of masturbation and its treatment in young girls. As to the causation of the habit it is a deplorable fact that many of these small children have been taught the habit by older persons and it has been practiced in secret until the extreme nervousness of the child has attracted the attention of the parents. Many, again, learn quite by accident of their anatomical peculiarities and in still others, retained smegma is the cause. Shall clitoridectomy be recommended as a routine procedure? Those who maintain that after all other methods have failed this operation is advisable, must be keenly alive to the fact that the means of gratification of the sense impression is not resident in the clitoris alone but is present in the adjacent structures. In adult women we find that stimulation of the urethra is a favorite mode of sexual gratification and the literature of gynecology has its collection of cystic treasures that defies imagination. The psychical side is also well developed in these selfsame adults; but these factors are usually absent in the child and thus augur certain promise for success in the simple operation of clitoridectomy. We bring up this question in the hope that our many subscribers will write us about their experiences; in return we would present a digest of these experiences—certainly a very practical problem in pediatrics.

SOME THOUGHTS ON INFANT FEEDING.—In this issue we are publishing a symposium—"How shall Infant Feeding be Taught?"—with the discussions thereon, which will be found very valuable, interesting, instructive and entertaining. The majority of Pediatrists admit that mother's milk from nature's fountain is the only ideal milk for an infant. Great progress has been made in infant feeding during the past few years, and it is well conceded, where breast milk is impossible, the nearest substitute, in its stead, is an accurate per cent of fat, sugar and

proteids of cow's milk. These principles have been fully expounded and further comment here is unnecessary. The application, however, meets with many puzzling difficulties, and there are cases in which selection of a proper food is extremely difficult, puzzling and discouraging.

The subject of infant feeding is a most interesting and important one, viewed from the standpoint of either morbidity or mortality. The mortality of infancy is notoriously high, due in some instances to neglect and bad environment, but mostly to bad food and worse methods of feeding. The morbidity of this period, due almost entirely to errors of diet, is witnessed by the many cases of malnutrition, marasmus, rickets, scurvy, and the catarrhal affections of the intestinal and respiratory tracts which carry off so many of these poor unfortunates during the much-dreaded second summer. This condition of affairs is all the more lamentable because it is for the most part preventable by providing good food and proper methods of feeding. It is most important that a foundation of good health be laid during this period, otherwise the child starts life handicapped with a poor digestion and a feeble constitution, liable to fall an easy prey to any of the common diseases of childhood, which a healthy child would probably not have contracted, or, if it did, would have the vitality and resistance to have recovered.

Inorganic chemistry is the most exact of all sciences, but the chemistry of an infant's digestion is far from being exact. An infant may be able to digest its food, and at the same time not be able to assimilate it, this we all have noted time and time again in the various forms of malnutrition, which is as unexplainable as the phenomenon of life. When from any cause the mother is unable to nourish her babe from her own breast, wet-nursing is the infant's next best chance, but even this is attended with danger of inheriting certain traits of the wet nurse, or being subjected to certain specific diseases through the milk. This is still an open question, but looking at it from a physical standpoint, there are undoubtedly certain risks encountered.

It is a much-to-be-deplored fact that maternal feeding is gradually but none the less surely being superseded by some form of substitute feeding. The reasons for this condition of affairs are many, and we fear it will never improve to any material extent. Many mothers of the present day, from the demands of society are unwilling to give up sufficient time for the care of their own health to secure a normal lactation in order to nurse and nourish their own children, and again others have neither the quality nor quantity to properly nourish their offspring. With a much larger class the failure of the milk supply and the resort to artificial feeding is due directly to ignorance and indulgence on the part of the mother, and secondly, to the negligence of the family physician in not properly instructing the mother upon this most important subject.

It is well to remember, *that anything aside from mother's milk* that is put into an infant's stomach *is a foreign substance* that may cause digestive disturbance. In artificial feeding the basis of infants' food is cow's milk. We must remember that milk is a very simple article of food for an adult, but when fed to an infant, it must be considered as an article of food of *a very complex character*. Nutrition and digestion should be considered together, but of the two, nutrition is of the greater importance. And in the case of poor digestion, anything that will sustain the infant should be given until normal digestion is re-established.

The criterion of success depends upon the crude material, its proper modification, and correct administration. Mother's milk is practically sterile, as it enters the baby's stomach and remains at a uniform temperature of 98° F. The percentages are stationary, and if they should vary through any indiscretion of the mother, it is very easily corrected.

Home modification of cow's milk as an artificial food for infants is now almost universally practiced in institutions with a fair average of success, but in the private home it is another proposition, though it is quite practical and feasible with an intelligent and willing mother. This entails an outlay for certain utensils and pasteurizing apparatus; even then it is only

an experiment, as in the beginning the mother is careful but later on entrusts to a servant the preparation and servants are not to be trusted, so the best, most positive and exact method is to leave a prescription at a reliable milk laboratory, or certified milk depot for the necessary amount to be delivered daily.

The disorders incident to faulty feeding manifest themselves through various misleading symptoms—the principal symptoms being vomiting and diarrhoea. The cause is either due to the child's gastro-intestinal tract being unable to digest or assimilate its food or it may be the result of some indiscretion in proper food selection. We must not lose sight of the fact that *it is just as essential to fit the baby's condition to the food as it is to fit the food to the baby*. I warrant that many a baby's life has been sacrificed in going to either extreme. Paying attention to every small detail in feeding infants brings its own reward. The physician not only has the babe's present welfare at hand, but its future welfare is placed on a high plane in the strife of life. In commencing to treat a baby for any form of malnutrition of gastro-intestinal disorder, get a precise and complete history from birth to present time. Note its weight, as compared to a normal child's weight. Ascertain the various foods tried, whether containing a high percentage of starch, the length of time the food was given. Note the most annoying symptoms since birth, for instance the colicky cry which gives us a clue to faulty proteid digestion. Vomiting shows us that fats cause the trouble; diarrhoea, excess of sugar and sometimes fats. When a babe's weight remains stationary, or if there be a slight increase in weight after careful food selection, or changing from one artificial food to another, then it remains to find out whether the amount of nourishment is adequate, and whether the food is being assimilated.

Clinical experience has demonstrated the fact, that some children will thrive on modified or certified milk, others on condensed milk, Nestle's, Horlick's or Mellin's food, in spite of faulty hygiene; while others will not do well on any of these artificial foods, even under the best hygienic conditions, in the best environments and with the most careful painstaking feeding, again,

some will thrive on raw cow's milk while still others will not do well on this or any form of artificial food.

PEDIATRICS CHANGES HANDS.—It is with no little gratification that we learn that Dr. W. E. Fitch has purchased PEDIATRICS and will henceforth edit this well-known publication. Dr. Fitch has long been connected with medical journalism as Editor of *Gaillards Southern Medicine*, and he will bring to PEDIATRICS a ripe experience both as publisher and editor. He is a graceful as well as a brilliant writer, and has contributed extensively to medical literature.

We understand that Dr. Fitch contemplates many changes in PEDIATRICS and with a staff of collaborators which includes many of the country's foremost pediatricists, this excellent journal is certain to achieve new successes in its special field. Dr. Fitch is a true southern gentleman and his name on the Editorial page is ample assurance of the high and honorable plane on which PEDIATRICS will be conducted. If the sincere good wishes of the many friends of both PEDIATRICS and Dr. Fitch mean anything there can be little doubt of the good work that will be done in an exceedingly important branch of medicine.—*From American Medicine* (Oct., 1909.).

Our hat is off to *American Medicine*, as well as to its affable editor for the above. No member of the American Medical Editors' Association stands higher in the esteem of his associates than Dr. H. Edwin Lewis, the brilliant and erudite editor of "*American Medicine*." Its phenomenal success under his management is due entirely to his sagacious business acumen and wise editorial policy—which has placed *American Medicine* on the top-most plane of American Medical Journalism.

One of the strong points of the professional and personal character of Dr. Lewis is his thorough appreciation of the highest code of ethics—that of a gentleman. He is as true to his convictions as the needle to the pole. He does not arrive at conclusions in a haphazard manner, for he knows no curves or angles, he weighs well any matter under consideration, and decides quickly and correctly, not by intuition—characteristic

of woman-kind—like whom he is as gentle, as modest and as kind, but from a great knowledge of general literature, a full fund of general culture and a wise business acumen.

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- 1899. Vol. VII, Nos. 1 to 12, Jan. to June.
- 1899. Vol. VIII, Nos. 1 to 12, July to Dec.
- 1901. Vol. XI, Nos. 1 to 12, Jan. to June.
- 1901. Vol. XII, Nos. 1 to 12, July to Dec.
- 1902. Vol. XIII, No. 6, March 15th.
- 1902. Vol. XIV, Nos. 3, 5, 6, 9, 10, 11 and 12.
- 1904. Vol. XVI, Nos. 5, 8, 9, and 12.
- 1905. Vol. XVII, Nos. 1, 2, 3, 10 and 12.
- 1906. Vol. XVIII, Nos. 1, 3, 7, 11 and 12.
- 1907. Vol. XIX, Nos. 1, 4, 9 and 12.
- 1908. Vol. XX, Nos. 1, 2, 3 and 12.

We are anxious to secure copies of the above numbers of PEDIATRICS to complete our files; we will pay 10 cents each for copies for the years 1899-1901 and 1902. From Jan. 1st, 1904, we will pay 20 cents each in cash or extended subscriptions.

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ORIGINAL ARTICLES

SHOULD INFANT FEEDING BE TAUGHT BY DOGMATIC ELUCIDATION OF ONE METHOD?

By ISAAC ARTHUR ABT, M. D.

Associate Professor of Diseases of Children, Rush Medical College, Chicago.

I think if one were to take a census of our recent graduates concerning the greatest bugbear in the medical curriculum it would be almost unanimously voted that the subject of infant feeding is the most difficult to grasp and is presented in the most intangible form of any subject in the curriculum. It was formerly said that no obstetrician had arrived at distinction until he had modified an obstetrical forceps and labeled it with his name. And so it may be said of teachers in pediatrics; no pediatrician is truly great until he has evolved some new method of infant feeding and attached his name thereto.

Every conceivable plan has been invoked for modifying or adapting milk for artificial feeding. It would be an absurdity to enumerate them. Those men who have been devotees to one single method, in some instances, have become enslaved themselves and have exacted the strictest allegiance from their students. Any deviation from one of these sanctified methods has been considered a sacrilege.

Those of us who have lived long enough to accumulate an experience of our own, must have learned that no one method is applicable in every case. We have learned very often from our bitter experience that the method which was crowned with the greatest success in one case met dismal failure in another. Our own statistical summary of results did not correspond with those which appeared in current literature, or in the proprietary infant food propaganda.

Our babies have not always looked like the ruddy faced infant who appeared on the label, after taking 2 cans of the never fail infants' food.

The subject of infant feeding has usually been taught as this or that man's method, by figures on the black-board involving algebraic calculations, whereas it should be taught at the bed-side and in the laboratory. It is my own idea that the subject should be taught candidly, not dogmatically. Students should know from the outset the limitations of artificial feeding, the high mortality attendant upon its use and the general principle that no one plan of feeding or food is applicable in every case. He should have it impressed upon him, time and time again that the only specific food for an infant is mother's breast-milk, and every energy should be bent to conserve the specific food for the infant.

The student should be taught to be resourceful, not to try one food after another in a hap-hazard manner until he has run the gamut, to say nothing of exhausting the baby's digestive and assimilative powers. He should be taught the general principles of feeding.

A vast amount of work has been done in the past ten years by scientific workers in pediatrics on the physiology and pathology of infant digestion and the chemistry of infant food.

Perhaps it is not going too far to say that in no department of human knowledge has the pendulum swung so far as in the subject of infant feeding. One school has taught that the preservation of life, the prevention of rickets and the treatment of constipation depend upon a high fat content. At this moment another school teaches that the preservation of life, the prevention of disease and the cure of constipation, depend upon a low fat.

The general principles of infant feeding should involve a most searching study of the physiology of nutrition. The chemistry and indigestion of fat, proteid, carbohydrates and salts, their appropriation in the body and disposal through the excrement, should be investigated in the most thorough manner. The study of nutrition in the infant consists not only in an understanding of his digestion but equally as important is an inquiry into the functions of metabolism. We have recently learned that the alimentary intoxications depend not only on perversions of digestion, upon fermentation and decomposition in the gastrointestinal tract, but what is equally important, the effect of the toxic acids and allied chemical products upon the cells and tissues lying beyond the intestines.

The hypothesis that the molecule of fat or the molecule of proteid elaborated from a non-specific milk, may not enter into perfect union with the cells in the intermediary metabolism, has not only scientific but also practical interest. This hypothesis offers an explanation why the up-building processes of the body do not go forward and why the infant loses or remains stationary in weight, despite the fact that he is receiving an abundance of food and the digestion seems normal, as indicated by the stool.

Great stress should be laid upon the abnormal states which result from an excessive amount of any component element of the food. Just the same emphasis should be laid upon abnormal states, resulting from a deprivation of food elements. While

it is of great importance to impress upon the student the lessons of digestion and of metabolism, it is equally important to lay great stress upon the energy value of foods. Thus the problem presents: The baby is digesting well, but is not gaining in weight. What change may be made in the infant's diet which will increase the caloric value of the food without impairing digestion?

It is important to drill into students the necessary facts concerning the frequency and quantity of feedings and the dangers of over-feeding as well as under-feeding. In order to complete the student's understanding of the food mixture he should be thoroughly instructed about the percentage composition of food, particularly milk and he should learn to interpret the percentage value of food mixtures. Thus he will know at a glance whether the baby is receiving too much fat, too little, or too much proteid or too little.

To compute all in caloric values and to forget chemical composition, is to ignore accumulated data of inestimable value, and narrows the horizon, limits the resourcefulness and tends to enslave practitioner and student alike to a single method.

It should be the constant aim of the instructor to correlate the more elementary aspects of food, physiology, percentage and energy value, with the clinical aspects of a given case. Not only should he be taught the proper feeding in disease, but what is, perhaps, more important, how to feed so as to prevent disease. He should learn how to interpret symptoms which result from feeding which threaten to produce illness, or as Finkelstein describes in severe types,—catastrophies.

Danger signals such as tympany, vomiting, rapid breathing, soporose states or unconsciousness, call for a complete cessation of feeding.

Aside from the increase in body weight, there is no better index of the function of digestion and assimilation than the examination of the stool. The student should be taught to examine this in health and disease, both macroscopically and microscopically; and it should be interpreted in its relation to the digestive and metabolic functions of the infant. In the same

way, the relations of the urine to feeding and perversions of feeding have a very distinct meaning; excessive excretions of ammonia in the urine means acidosis, presence of indican means putrefaction, glycosuria means alimentary intoxication.

Thus to sum it all up, the teaching of infant feeding should not consist in teaching one man's method. The really great teacher maintains a historic consciousness, lest all the clinical experience of the past be lost to him. New principles are being continually evolved. He should be open-minded, receive them and impart them.

The teaching of science is not like the production of a modern newspaper, which discards as unreadable, all items more than 24 hours old. All the well-proven theories should be imparted to the student, all well-grounded principles should be laid before him. We should not attempt to lay down the subject of infant feeding as a problem in mathematics, which can be proved by an absolute method. We should combine the clinic with the more theoretical considerations. We should make the teaching inclusive, giving it a wide range, not exclusive. We should endeavor to increase the resourcefulness of the student by teaching him all that is best in all of the methods, by reconciling old facts to new theories, by avoiding dogmatism, elucidating principles which are founded upon accurate observation at the bedside and in the laboratory.

WHAT SHOULD BE TAUGHT CONCERNING THE CALORIMETRIC METHOD. FOR PRACTICAL USE.

By J. W. VANDERSLICE, M. D.,

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The teaching of the calorimetric method confines itself to a definition, limitation and application; and should be done in the school years previous to that in which the student takes pediatric work. A mere familiarity with the term including interpretations of food values in calories is all that should be necessary.

Calorimetry is a method of measuring the potential energy of food. A calory is a heat unit and represents the amount of heat necessary to raise the temperature of one kilogram of water one degree Centigrade. It is the accepted standard of estimating the values of the various food-stuffs. The exactness of the method is not within the scope of this paper; however, it is well to remember that the theoretical value within the economy of sugars, proteids and fats is largely in the realms of theory.

During the past few years the dietetics of infancy has suffered greatly from the importation of many of the continental fads and hobbies. The application of some of these so-called methods has been so magnified by their American converts that in the mere means of measuring food values by calorimetry there is foisted upon a long suffering profession and the unprotected infant a new short cut to the science of infant feeding. It was with a feeling of embarrassment that the author read in one of the leading pediatric journals that "the percentage method of feeding universally popular in this country, it must be confessed is an empirical method which may be made scientific if we add to it the determination of the caloric values of the various mod-

ifications." This may be taken as an example showing to what lengths these extremists are led in their enthusiasm. Notwithstanding all this, do not interpret the author as decrying the estimation of food values, or the use of caloric mensuration. On the contrary the author believes that it is only by the estimation of food values that a safe-guarding against both over and underfeeding is provided. The mode of calculation is of slight importance so long as such estimation is performed. In the use of calorimetry there is the great advantage of uniformity much to be desired.

This vogue of caloric mensuration through which we are now passing has brought about a more common use of the method and even the proprietary foods are heralded with calories and energy quotients. The food values of all the commoner articles used in the dietetics of infancy should be taught. In the author's clinic, it has been the custom for some years to teach the caloric value of average breast milk, bovine milk and the cereal mixtures. It is necessary to memorize but a few values to readily interpret the value of any mixture and as it is necessary to know the food value of each mixture given, this is best done by the use of calorimetry. Average breast milk is considered to have a value of 650 calories per litre or 19+ per ounce, bovine milk to have a value of 700 calories per litre or 20+ per ounce.

The estimation of the caloric value of a given mixture is the more readily done by the use of the metric system, reducing the quantity to litres and the percentages of the various ingredients to grams and by simple multiplication and addition find the value. One gram of fat equals 9.3 calories. One gram of sugar equals 4.1 calories. One gram of proteid equals 4.1 calories.

The number of calories of food to be given per kilo of body weight in twenty-four hours has been worked out to the entire satisfaction of some writers but in the application of any such set of rules to daily practice the personal equation of the child far outweighs all other considerations.

The experiences of the German investigators are of distinct value and their allowances of from sixty to one hundred calories per kilo weight may be taken as a good working basis. This is especially valuable in those cases of slow convalescence from enteric disorders when milk is interdicted as there is a real danger of underfeeding.

In the feeding of large bodies of men as in armies, prisons, etc., there is great economic value in the exact allotment of food per diem but in the feeding of infancy this economic consideration is of slight importance and the prime object is the *nutrition* of the child and that amount that best suits the individual is the amount desired. What is overfeeding in one child may be underfeeding in another of the same weight and age. Too many factors make up that quality termed "personal equation" to render it possible to lay down any set and fast rules as to the amounts for other than the one child at hand.

WHAT SHOULD BE TAUGHT CONCERNING MIXED FEEDING OF INFANTS.

BY H. M. McCLANAHAN, M. D.,

Professor of Pediatrics, University of Nebraska.

OMAHA, NEB.

"Woman's milk is the ideal infant food." A careful study of the mortality and morbidity of bottle fed infants as revealed by the vital statistics both here and in European countries, certainly proves that their life prospect is not nearly equal to that of the breast fed infant. Again those who have given the most careful study to the subject of artificial feeding, freely admit that it is not as safe as breast feeding.

From these two facts it follows that it is the duty of the mother to nurse her infant. Improved methods of infant feeding; increased knowledge among the laity of the danger of impure milk have certainly lessened the death rate among the bottle fed; but these facts do not warrant the mother in depriving her infant of its normal food. The time has not come, and never will, when science and art can prepare a food equal in safety and nutritive value to human breast milk.

My first premise is that it is the moral duty of the mother to nurse her infant at least during the first six months of its life, and that the responsibility for this teaching devolves, in a large measure, upon her medical adviser. It should be clearly and incisively taught that there is but one reason for depriving the infant of breast milk, viz.: some serious constitutional disease in the mother. No other consideration, or convenience of social advantages should swerve the physician from his duty in urging the mother to nurse her offspring.

My second premise is that the responsibility for teaching the laity rests almost entirely upon the family physician. It is

my belief, founded upon careful observation, that many mothers wean their infants at the advice of the physician, and that the majority of mothers, if they realized the danger to which the infant was exposed in being deprived of the breast milk, would gladly make any sacrifice in order to nurse it.

For many years our literature has been so replete upon the subject of artificial feeding that many physicians, as well as the laity, honestly believe that artificial feeding is as free from danger as breast feeding.

These general remarks lead up to my subject, viz.: "Mixed Feeding." By this it is understood the supplementing of breast feeding by some artificially prepared food.

1. When a mother is in good general health; when her baby grows normally—that is, with a steady increase in weight; absence of anæmia; good bony and muscular development; then it may safely derive its nourishment entirely from the breast at least during the first six months, but in this class of cases mixed feeding should be instituted two or three months before the infant is entirely weaned from the breast. There are two general reasons for mixed feeding, viz.:

(a) When the mother finds her health in any way impaired as result of nursing; has loss of weight, secondary anæmia; disturbed sleep; extreme restlessness.

(b) When the infant fails to grow regularly in weight; when it is restless after nursing; when it does not sleep soundly; when it remains at the breast twenty minutes or more; when it is constipated or suffers from some form of indigestion.

Then in either event mixed feeding should be employed. Unfortunately, many in our profession are in the mental attitude that when the above conditions arise, they at once advise weaning of the infant. If the infant does not thrive, or the mother's health is in any way impaired, the question naturally suggests itself, why not wean it entirely?

This is the crux of the whole question. If part breast milk does not include the nutrition or add to the safety of the infant, then it would be as well and possibly more convenient to wean it entirely.

However, evidence is accumulating that breast milk contains certain properties that cannot be imparted to any artificially prepared food. It is certain that the problem of infant feeding is not only an economical but biological one also; that human breast milk is suited to the human infant just as cow's milk is suited to the calf. There will not be time to give any extended discussion to this phase of the question, and I shall simply enumerate the advantages of breast milk and cite a few authorities.

1st. It is a raw fresh food.

2nd. It is received into the stomach at the body temperature.

3rd. It possesses antitoxin or protective substances that undoubtedly confer immunity upon the infant.

4th. It contains certain enzymes that make it more easy of digestion and assimilation.

5th. Its conversion into living protoplasm requires less energy upon the part of the infant than prepared food.

6th. There are infants who cannot maintain an existence without breast milk.

Some of the above statements are self-evident; others require confirmation. Rogers, cited by Holt, reports the case of thirty-six nursing mothers admitted to the hospital, fifteen having measles, nineteen scarlet fever, one diphtheria and one mumps, all continuing to nurse their infants, while the infants entirely escaped the disease of the mother.

Dr. Ernest Moro has reported from Escherich's Clinic in Gratz, experiments going to prove that human milk contains normally certain enzymes not found in cow's milk. He announces that if a few drops of human milk are added to the hydrocele fluid, in a few moments the albuminoids in the hydrocele fluid coagulate into a firm mass. This reaction does not occur in cow's or goat's milk. The fluid evidently contains fibrinogen and the milk, fibrin-ferment, and the combination of the two induces coagulation.

Schlossman of Munich, has conducted investigations along this same line with similar results.

A. B. Marfan (*Annales de Medecine et Chirurgie Infantiles*, Vol. XII. No. 17, p. 577) concludes that enzymes have two sources of origin.

1st. They will elaborate in the intestinal duct of the infant.

2nd. They are furnished in breast milk, and that if the infant has sufficient vitality to produce its own enzymes in proper quantity (and we know from experience that many infants have) then it will grow and thrive on artificial food; but that there are certain infants incapable of producing their own enzymes and these infants will not thrive upon an artificial food.

As we cannot know in advance which infant is capable of developing its own enzymes, it is certainly safer, when possible to give all infants at least a certain amount of breast milk.

The arguments advanced in favor of breast milk as the ideal food for the infant apply with almost equal force to mixed feeding, so that the above reasons are to my mind conclusive in establishing the premise that mixed feeding is better and safer than exclusive artificial feeding. There are other arguments in favor of mixed feeding over exclusive breast feeding, viz.: the mother has more personal interest in her child and will give its welfare more thought. Mixed feeding will conserve the strength of the mother; give her greater opportunities for social enjoyment, while at the same time the infant will derive the benefits from the breast feeding.

As I have stated, many mothers would be willing to nurse their infants if they rightfully understood its importance. In my experience, failure to nurse frequently occurs during the first two weeks of the infant's life, and this failure is not due to unsurmountable obstacles. With the primipara the same care and attention should be given to establishing breast feeding that would be given in a case of severe illness. If this were done, the vital mistake of weaning the baby entirely would be avoided. During this time it is frequently necessary to give the baby some prepared food, and I have personal experience in cases of infants doing badly during this period for want of supplemental feeding.

I have personally known of cases where, after two or three weeks, the mother was able to nurse her baby entirely. In a majority of cases I do not think it is necessary to ask the mother to nurse her infant exclusively; that a more mixed feeding is proposed. More physicians will come to appreciate these advantages. You should be just to the mother, as well as the infant.

In conclusion, it is the duty of those who occupy the position of teachers to impress upon the minds of students the vital importance of this subject; that to carelessly wean an infant may mean a sacrifice of life; that to demand a woman to nurse her infant entirely is often unjust to her. With our present improved knowledge of infant feeding, a combination of bottle and breast will become more and more simple.

There is no more important problem concerning the profession today, than the education of the laity upon the subject of breast and bottle feeding.

WHAT SHALL WE TEACH CONCERNING THE FEED- ING OF DIFFICULT CASES?

By GODFREY R. PISEK, M. D.

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uate Medical School; Physician Post-Graduate Hos-
pital, Babies' Ward, New York.*

At the outset we must have a definite understanding of what the term "difficult cases" comprises. For what may be a difficult case for one may be simple for another.

To my mind difficult cases can be divided into two distinct classes and separated according to the physical findings, coupled with facts developed from a detailed history.

In the first class, I would place those infants who were healthy at birth, who did well while breast fed but who developed digestive disturbances after being artificially fed; their feeding history being one of hap-hazard, random trials of food mixtures that one after another disagreed.

In the second class, I would place those infants who did not thrive and properly develop notwithstanding the fact that they were carefully fed from the time artificial feeding was begun, with food that would be suitable for normal infants.

It is evident that in the management of infants of the first class the students should be taught to recognize why certain food mixtures are improper and be prepared to substitute appropriate foods; while in the second class, the difficulty is inherent in the infant itself and calls for *more* than ordinary skill in food preparation. In other words, in the first group the original cause is improper food, in the second group, an abnormal infant. In this connection it should also be remembered that improper food, continued too long may produce an abnormal infant, and an infant that really belonged in the

first class as far as the origin of its condition is concerned, may become so perverted in its functions as to belong practically in the second class. The degree of difficulty, however, will vary in both classes.

The method of management in difficult cases must necessarily depend upon the cause of the difficulty, and the student should be taught to correctly interpret this. For instance, an infant apparently healthy constantly vomits curds soon after feeding. Now we know that curds are formed by the action of rennin of the stomach on the milk and are rendered tough and stringy by the presence of acid. We also know that lime water, bicarbonate of soda, carbonate of potash or citrate of soda, when added to milk, in suitable quantities, will prevent the formation of curds.

The question should then arise, what is the origin of the difficulty and how can it be prevented? The student should be taught to reason it out in a systematic manner. For example, the acid that toughened the curd and made it indigestible may have been present in the milk when it was ingested, or it may have been produced by the bacteria of the milk, while in the stomach, after the milk had been curdled by the rennin; or an excess of fat in the food may have stimulated the secretion of an abnormally acid gastric secretion.

Knowing these possibilities it is apparent that before intelligent action can be taken he must determine where the excess of acid came from. If the milk was kept warm and was souring it would hardly be intelligent action to give citrate of sodium to overcome the curdling, or if the milk was excessively rich in fat, the reduction of this ingredient would be indicated and not the addition of an antacid.

These same principles may be applied all along the line and it seems to me impracticable to lay down hard and fast rules for the management of difficult cases. Before the young practitioner is capable of dealing rationally and to the best advantage with this class of cases he must have a thorough preparation and some practical bedside experience. To give him this, I believe we should teach:

1st. The fundamental laws of nutrition as they apply to all infants.

2nd. The general properties of all milks.

3rd. The specific properties of the milks of different species.

4th. The normal process of milk digestion.

5th. The action of acids, alkalies, antacids, and citrate of soda on milk and their effect on the digestive secretions.

6th. Simple methods of calculating the approximate composition of food mixtures of all kinds.

7th. The composition and food value of the substitute foods, of cereals, eggs and milks.

8th. By laboratory work, the physical and chemical properties of milk as the formation of curds and the effect of various additions to it. These experiments to be performed by the student himself.

9th. The actual work of preparing the mixtures for the bottle, using utensils that would be used in the home.

10th. In the dispensaries, the taking of feeding histories, and the interpretation of abnormal conditions, such as the vomitus and the stool.

This would cover all the cases that come under the first classification. After the student has mastered the broad principles of infant nutrition and is conversant with methods of food preparation, it would be well to teach him the elementary laws of biology (unless this is included in the requirements or curriculum) and general *animal* nutrition, particularly as they apply to the feeding of the difficult cases in the second class and these may be briefly stated as follows:

1st. That infants vary in the quantity of food necessary to produce an equal amount of growth or to maintain themselves; in other words, that they differ in their digestive and assimilative efficiency.

2nd. That food must be adapted to the individual and that when the food elements in one form disagree, they may agree perfectly when given in another form.

3rd. That the powers of digestion and assimilation may be dormant and that the way to arouse them is to vary the form, flavor and taste of the food, thus increasing the activity of the intestinal secretions.

4th. That any form of food that agrees with the infant may be used as a starting point, with the ultimate object in mind of supplying it with a food that shall contain enough protein for growth and sufficient fats and carbohydrates for heat and energy.

5th. That a wide range of resources is necessary in these cases.

One of the weakest points in the teaching of infant feeding has been its narrowness.

Let us teach the subject broadly avoiding dogmatism, rather developing thought than memory, and resourcefulness rather than bias in the minds of the students.

The above methods I have used both with undergraduate and graduate students, and believe that if some such method were more generally employed there would not be so many difficult feeding cases manufactured each year, and the exceedingly intractable cases we all have referred to us, would soon be fewer in number.

WHAT SHOULD BE TAUGHT CONCERNING PROPRIETARY FOODS AND CONDENSED MILK.

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The student, after having a thorough drilling on the composition of mother's milk, should be told that artificial feeding must be as near as we can make it to breast feeding. It must not injure the digestive organs by making them work too hard in disposing of it. Enough of its substance should be absorbed to sustain the growth of the body and give the required energy. The teacher should then enumerate all the standard known proprietary foods on the market. Then with charts show the difference between mother's milk and each kind of proprietary food. This didactic teaching should be supplemented with clinical material. If possible have present at such times babies fed and brought up entirely upon the proprietary food under discussion, and a normal breast-fed baby of the same age and surroundings! Such teaching will make the necessary impression on the medical student.

All proprietary foods and condensed milk to be used as advised by the manufacturer are deficient in fat and have an excess of carbohydrates; and as a rule, in salts far below the limit required by the body and their directions give no provision for adding the same. Condensed milk contains a large proportion of sugar, forms fat quickly, and makes large babies, but it does not contain enough nutrient material to supply the wants of a growing baby. It contains from 12% to 15% of sugar and some, on long standing, show as high as 50%.

Infants fed exclusively on proprietary foods and condensed milk are predisposed to scurvy and sure to develop rickets.

Proprietary infant food stands as the first cause of scurvy, condensed milk being second. The teacher may further dilate upon scurvy and upon the cause of rickets in later life. Such children are also predisposed to infectious diseases and stand their complications badly. They have very little resisting power, suffer from constipation, and its various intoxications all through infancy and childhood. Overfeeding is more apt to come with artificially-fed babies, i. e., those fed on proprietary foods and condensed milk.

We have infants' foods in which cow's milk dessicated is a constituent; and infants' foods to be used as an adjunct to cow's milk—either malted or farinaceous foods. The first are made of cereals and cow's milk. In these foods only one-fourth is milk and the rest is from matters derived from the cereals. And we have the farinaceous dried foods in which the starch is untransformed; and the malted dried milk foods where the cereals have been transformed into dextrine and maltose. Mellin's Food contains about 50% of maltose and 35% of dextrine. The use of flour and dextrine is not good because the diastatic power of the salivary glands and of the pancreas is not sufficiently developed in the young infant. Prepared according to directions, it is very high in proteids. Nestle's Food is a dextrinized flour but irrationally prepared with milk. Proteid, 9.9; fat, 4.5; carbohydrate, soluble, 42.5, insoluble, 35.2; water, 6. No cow's milk is to be added to Nestle's Food and modified according to the manufacturer's directions. It contains one-sixth of fat and about one-third of proteid (of which 50% is insoluble) of woman's milk. Horlick's Malted Milk is a dried milk food composed of cow's milk combined with an extract of malted grain. It mostly contains soluble carbohydrates. Prepared according to the directions of the manufacturer, it is low in proteid and it contains only one-seventh the amount of gas of woman's milk. Eskay's Food contains about 90% of carbohydrates of which 50% is soluble and about 40% insoluble. It is to be used with milk. The manufacturer claims that it contains easily digested cereals, combined with egg albumen. It is too high in proteid and low in fat. Imperial Granum, a farinaceous food used in modifi-

cation with cow's milk, contains a very large proportion of starch. Modified according to directions, it is very low in fat and contains less proteid and carbohydrate than woman's milk. The other proprietary foods can be taken up in the same way and their inefficiency proven as foods for an infant. The best known condensed milk on the market is the Eagle Brand. Their directions are: For young infants, dilute with 14 parts of water; for older children, not less than seven. One to fourteen of water gives us 0.7% of proteid, 0.6% of fat, 3.5% of sugar and 0.08% of salts.

Bacteria are absolutely destroyed by prolonged action of high temperatures, but by this milk is robbed of its properties which raw milk possesses against the development of the micro-organisms which it contains and is changed to such a considerable degree that its usefulness as a food for an infant is destroyed, and a suitable milk that will keep for a longer time cannot be prepared in this manner. The assumption is that the native properties of the milk are lost in the boiling or heating it to a certain degree. There is no question that in the preparation of the various proprietary foods, the treatment applied to them in the manufacture must produce such marked changes in them that they cannot be a substitute for good milk, and that their prolonged use may cause serious disturbances of metabolism if you wait long enough.

The first rule we teach in artificial feeding is that the physician must understand the nature of the milk mixture that he prescribes, so that he may vary it to suit the child's digestion, and modify it to meet the requirements of the growing infant. With proprietary foods and condensed milk this is impossible as you have no positive standard and are at the mercy of the manufacturer who makes his changes as often as he sees fit or, it is profitable to him, without any notice. In some of the foods, before reaching the baby, processes of decomposition may have started. Our senses of sight, smell and taste cannot detect it.

After taking up the subject in that way and proving how unwise it is to use any of the proprietary foods and condensed milk as a steady and only diet for an infant, we must tell the

student when and under what conditions proprietary foods may be useful. Condensed milk in my estimation should only be used in cases of travel or epidemics, of cattle-disease when pure cow's milk cannot be obtained; this only for a short time. If proprietary foods are used in such emergencies, use only those to which you do not have to add milk. After convalescing from gastro-intestinal disturbances or in different forms of diarrhoeas, milk infections, when the older infant is tired of the cereals, and for a few days before putting him on milk, the use of those proprietary foods, farinaceous and malted dried milk foods can be advised, as such foods tax the digestive organs very little. When we find an infant already brought up on some proprietary food or condensed milk and it seems to gain and thrive and you are assured that any other form of feeding has disagreed, the damage is already done, the digestive organs have accommodated themselves to the food. It is sometimes, especially where the surroundings are not in accord, best to continue, rather than make a failure in changing. A change in such a case would have to be a cow's milk formula as near to the food the child was getting and gradually reducing the carbohydrate and increasing the fat and proteid. Any slight failure or over-anxiousness on the part of the physician to get quickly to the scientific formula required by the child's age will only be a boon to infant foods.

In partially weaned babies where it is only necessary to supplement the breast feeding with one or two bottles, either due to a lack of secretion or to sickness of the mother, a short time while you are bringing mother's milk up to the standard, the proprietary foods and condensed milk can be used.

The responsibility for the existence of so many foods on the market is due to the medical profession which prescribes them. The average practitioner does not care to give much time and study to infant feeding and readily accepts and prescribes formulas that the proprietary food manufacturers print on the label for him. The Mellin Food people have gone so far as to issue a book on the modification of their food, and formulas ready to use.

The physician doesn't know that he can get any desired formula in the laboratory or home modification. When confronted with a case of difficult feeding in order to find out whether the child is suffering from proteid indigestion, sugar indigestion, or fat indigestion, and acquainting himself with the trend of symptoms that we expect to get from the disturbances of the different kind of food constituents, he simply says, "the food does not agree with the baby," and goes to some proprietary food because the manufacturer says that it is the proper food for the child.

Fortunately, some of the manufacturers knowing the bad effects from their foods alone, advise the addition of fresh cow's milk to the food and the baby gets a fair formula and sometimes thrives.

In conclusion, there is no doubt that we can raise some infants on proprietary foods, and we can also raise some babies on whole cow's milk, providing the fat does not exceed 3 or $3\frac{1}{2}\%$ and not over 150 c.c. per kilo body weight. Every physician has seen some fat babies fed only on condensed milk; but every clinician has also seen during an epidemic of bronchopneumonia, the death rate about 90% in such babies. The argument about the cost, those foods being so cheap, nothing is cheaper than cow's milk and by proper modification you can obtain any formula desired. Where is the manufacturer that can make a food that will suit every baby? I think it is safer to teach the medical student the restriction of such foods only to the instances mentioned, and it is dangerous to advise them as a steady and only food in every case.

HOW SHOULD THE PERCENTAGE METHOD OF MILK MODIFICATION BE TAUGHT?

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Milk modification consists of rearranging the various constituents of cow's milk, so that the resulting product will approximate more closely the percentages of fat, proteid and sugar found in human milk.

The methods in vogue at the present time are many:—top milks, whole milks and gravity cream; whey-cream or whey top milk, dilution with water, with plain and dextrinized cereal gruels, addition of alkalies and lactose, preparatory foods, etc. If the approximation of the percentages of these three constituents of cow's to human milk constituted the sole consideration, milk modification at the present time would be a finished science. Unfortunately the physical and chemical differences existing relatively in cow's and human milk are so great that the definite percentages in human milk fail as a standard and we are forced to rely solely on the digestive capacity and nutritional needs of the individual baby as our only guide to success.

Since the advent of the calorimetric method of Infant Feeding, we find that in the past we have been overfeeding our patients, particularly as regards fats, and in many instances underfeeding on proteids. This resulted from the much advertised and easily demonstrated difference in the proteid constituent of cow's and human milk. The relatively high proportion of casein to albumin in cow's milk and the physical, chemical and biological discrepancies, together with the incidence of proteid curds in the stools, at once put the seal of condemnation upon this element. Hence it became common practice to reduce and further reduce the percentage of proteid until we find upon

the calorimetric test that we have not been meeting the nutritional needs of our little patients in this regard.

The chemical and physical differences existing in the fats of human and cow's milk, are fully as gross as in the proteids. That this has escaped suspicion and censure so long is past understanding. Insoluble, indigestible fat is harmful, directly because of the production of irritant and toxic fatty acids low down in the intestine, thus favoring acidosis and indirectly by hindering or preventing the digestion of the proteids in the stomach and upper intestine.

The percentage method of milk modification in its present form and methods of application does not solve the difficulties above described. Happily the fat difficulty is partially solved by a proper selection of the breed of cow. The Holstein, short-horn, Ayrshire and common cow, in the order named give a milk fat with a lower melting point, higher iodine value, and a relatively high proportion of olein to stearin and palmatin.

It is assumed that the mathematics involved in the percentage method of milk modification has been acquired by the student before entering upon the study of medicine. It remains, therefore, to teach him the chemical composition of the raw material on the one hand, and the physiological requirements of the infant on the other. His knowledge of milk chemistry should be practical, and during the senior year, at least one specimen should be completely analysed. This should include actual specific gravity, with correction for temperature, the reaction, estimation of solids and ash. The fat should be determined by both the Soxhlet extraction apparatus and the Babcock method. The melting point of the fat should be determined, and also the iodine number in order to determine the percentage of olein in the fat. The proteids should be estimated by the Kjeldahl method, first determining the total proteids and then splitting the proteids and estimating the casein and albumin separately. This process is rendered much less troublesome by making steam distillations. A little more apparatus is required, but it is simple and all danger of foaming and bumping is avoided. The distillation is also completed in less time.

Sugar should be estimated both by the polariscope and the Volumetric method, using Pavy's modification of Fehling's solution. At present the carbohydrate of the milk is not regarded very seriously as it exists in fairly definite proportions and little trouble in infant feeding is experienced with it. However, it is well to bear in mind that there is marked difference in the *crystal oriphy* of milk sugar from various sources, and future investigation may clothe it with more prominence.

If the recent graduate in medicine has successfully mastered the above analyses, and if he is to assume control of the artificial feeding of infants, the importance of more definite knowledge than the assumption of the percentage constituents of the milks he is modifying will appeal strongly to him. Assumed percentage estimations of milk are frequently erroneous and the errors grow rather than diminish, as the rearrangements of the constituents in the modification takes place. Lengthy chemical analyses are not available in solving these difficulties, hence we must rely on procedures characterized by brevity and simplicity, but sufficiently accurate for practical purposes. Analyses which the writer has used both in private and hospital practice, and which he has endeavored to teach to the house staff can be carried out in about an hour, and include the following tests:

Reaction—A measured amount of milk is titrated with N
—
10

Sodi. Hydrate Sol. Phenolthalin as indicator, and the acidity found by the following equation:

$$\% \text{ Acidity} = \frac{\text{CC Alkaline} \times .009}{\text{CC Milk}} = 100.$$

The factor .009 = grams of acid lactic neutralized by 1 c.c. of N
—
10

Sodi. Hydrate Sol.

The specific gravity can be found either by the lactometer, or still better by the Westfall balance making temperature corrections by the Richmond rule. This involves some mathematics because the rule is calibrated in accordance with the Fahrenheit scale and the thermometer in the plummet of the Westfall appa-

ratus is centigrade. This is easily and readily computed by the following equation:

$$F = C \div 5 \times 9 + 32.$$

Fat:—Fat is best determined by the Babcock method, and this is easily carried out by using a small Babcock tester, known as the Facile Junior, manufactured by D. H. Burrows Co., of Little Falls, N. Y. It can be had in two or four flask capacity, and sells at \$4 to \$5 respectively, including the necessary glass-ware, and a pint bottle of sulphuric acid, sufficient for a number of tests. The estimation of from one to four samples of milk can be made together in about ten minutes.

Olein:—The approximate percentage of olein in the fat can be estimated in the following way:

Theoretical iodine value for olein is 86.20. If iodine value of a fat = 1 the % of olein will be $100 \times 1 = 1.1601$ this factor

$$\frac{86.2}{100}$$

× by the known or assumed iodine value of the milk fat = % olein.

By the Richmond rule above referred to fat and specific gravity being known the solids can be found.

Proteids—Boggs Test; the reagent consists of the following two solutions:

Solution A, Acid Phosphotungstic	25.00
Water	125.00
Solution B, HCl.	25.00
H. O	100.00
2	

Mix A and B. Dilute milk 1-20. Add milk to mark U in Esbach tube, and reagent to mark R. Read parts per thousand after 24 hours, allowing for dilution, and estimating percentage. The writer has found the centrifuge more accurate than the Esbach tube. Standardization is not necessary, but the centrifuging should continue until the readings are stationary.

This will complete an analysis of milk in an hour which will give results sufficiently comprehensive and accurate to enable one to make a percentage modification of the milk so tested as to be

of positive advantage to the infant, and much assurance to the physician.

The various algebraic formulae which have been devised for the purpose of compounding mixtures of definite percentages of fat, proteid and sugar; from whole milk and cream, top milk and whey of known percentages, with the addition of lactose, are exceedingly convenient and valuable in the hands of those who have familiarized themselves with them. The writer has used for years the method of Dr. J. Fielding Taylor, and with slight modification it can be used in the preparation of whey cream mixtures.

CONCLUSIONS.

I. Practical familiarity with milk chemistry is fundamental and necessary.

II. Sufficient knowledge of the physiology of the infantile digestion to adopt proper percentages.

III. Ability to think in percentages, but always with a definite idea of a tangible amount or mass.

IV. The mathematics should be as simple and direct as will admit of accurate results.

V. That the mastery of percentage modification cannot avert all the complexities which may arise in the adaptation of a baby's diet.

VI. We should teach general principles only—permitting the student to follow his own inclination as to mathematical methods.

VII. The universal adoption of the Metric System of weights and measures will simplify the mathematics and render the results more accurate.

WHAT PERCENTAGE OF THE WHOLE NUMBER OF
THE HOURS IN THE PEDIATRIC COURSE SHOULD
BE DEVOTED TO INFANT FEEDING, AND IN-
TO WHAT MAIN HEADINGS SHOULD THE
SUBJECT BE DIVIDED?

BY JOHN ZAHORSKY, M. D.,

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In answering the question propounded in the title, it is, perhaps, needless to state, that the number of hours must vary in different schools in accordance with the general subject of internal medicine. When such subjects as the eruptive fevers, and especially the infectious diseases, receive exhaustive attention by the chair of medicine, much of the general subject of pediatrics is covered and need not receive special consideration by the teacher on the latter branch of medicine. In general, however, at least one-fourth of the whole number of hours devoted to the study of pediatrics should be assigned to the subject of infant feeding and the nutrition of infancy. One-third of the whole time is not too much.

The subject should be divided into several parts:

(1) Lectures and recitations on the physiology of digestion and nutrition of infancy, the composition of human and bovine milk, the composition of other foods entering into the dietary of infants, and the collection and preservation of these foods.

(2) The needs of infants for proper nutrition, the nutritive ratio, the caloric requirements, and the artificial preparation of milk and other foods according to a required composition.

(3) Practical infant feeding, including both maternal nursing and substitute feeding.

(4) The pathology of digestion and nutrition, including the study of clinical phenomena.

(5) Clinical experience in infant feeding, including observation in the clinic or hospitals; the study of the weight, length, and general condition of growth and nutrition.

I must insist that too little attention has been given to the physiological chemistry of the digestion and nutrition of infants. Recent researches should leave the teacher little excuse for neglecting the subject. The student should be taught the necessary amount of protein and non-nitrogenous food-constituents to make a complete daily ration. He should be repeatedly drilled in a simple method of modifying cow's milk to meet any reasonable composition sought. Above all he should be taught the symptoms of indigestion in its various forms and how to recognize what food constituents are giving the trouble.

Most physicians are familiar with one or more methods of modifying cow's milk, but I find that the greatest mistakes are made in adapting the quantity and composition of the food to the digestive powers of the infant. It is essential to teach as clearly as possible what to do when a modification of milk fails to agree with the infant. The subject is often dismissed with a few words. Several hours should be devoted to the feeding of the difficult case, a practical work to which every general practitioner must give much attention.

Teach the principles by lectures and recitations but the actual feeding should be taught by practical work. A few hours devoted to mathematical calculations of the modification of milk, of calories, the nutritive ratio, the energy quotient and other practical parts of the subject is time well spent. The physician must learn how to prepare a food and why it should be prepared in a certain strength of the individual ingredients.

THE ASSOCIATION OF AMERICAN TEACHERS OF DISEASES OF CHILDREN.

ANNUAL MEETING, ATLANTIC CITY, JUNE 7TH, 1909.

DR. CHARLES DOUGLAS, PRESIDENT, IN THE CHAIR.

Symposium on How Should the Subject of Infant Feeding be Taught?

DISCUSSION OF DR. VANDERSLICE'S PAPER.

Dr. Henry I. Bowditch, Assistant in Pediatrics, Harvard Medical College, Boston, Mass., said he was very glad indeed to have Dr. Vanderslice take such a broad view of a thing that had been causing so much disturbance in the paper. As he had said he was going to agree with him; but at the same time he wished to add one or two things about the possibility of elaborating the calorimetric method in infant feeding.

Calorimetric feeding, nor any other method of feeding, could be considered a panacea. One might understand one method or another and, with a common sense application of it, taking into consideration the physical reaction of the stools and the symptoms presented by the patient, one would get better results than if another method of infant feeding was applied. The calorimetric method enabled one to obviate over or under-feeding. The value of this, of course, was apparent when they were dealing with premature children, or children who were not gaining in weight. Under those conditions the calorimetric value of the food should be worked out. What was food for one child was a poison possibly to another, and what was the caloric needs for one child would not be the caloric needs for another. Calorimetric feeding, making the calculations, should be taught in its simplest way and with the simplest methods; how it was computed and the proper relation in which it stood to infant feeding. Do not confuse students too much, however; do not make them be-

lieve that this method was all important. It was certainly a very valuable asset to a very difficult subject.

Dr. Godfrey R. Pisek, New York City, Professor of Pediatrics, Medical College University of Vermont, said he was very much gratified to hear Dr. Vanderslice's paper and his common-sense views on the subject, as well as Dr. Bowditch's discussion. What had been presented certainly was an addition to the subject and a help to the student of infant feeding. It should be remembered that a careful man would probably get along satisfactorily whether one method of infant feeding was used or another. The calorimetric method as a guide would give disastrous results; he said he felt strongly about this.

Dr. J. Finley Bell, Visiting Physician Englewood Hospital, Englewood, N. J., said that one feature of the calorimetric method was that it gave a sufficient number of calories for the child. What was needed was to know the minimum amount of proteid and the minimum number of calories that a child will thrive upon at a given per kilo weight. This had been the trouble with the percentage method of feeding. He thought that the calorimetric method would make the percentage method more valuable, giving them a more accurate knowledge of the raw material before they began to modify it. Many patients had been under-fed as well as over-fed because they were scared by the proteid curves. These were the cases where the stomach digestion of fat was interfered with; a fat covered curd could not be digested in the stomach or in the duodenum. Dr. Bell was quite sure that an infant would stand a considerable amount of proteid in the intestine if there was not too much fatty acid present.

Dr. Alfred C. Cotton, Rush Medical College, Chicago, Ill., thought that from his observations in the west and the discussions that followed the reading of papers in which was advocated the calorimetric method of infant feeding, the great mass of the profession who were called upon to feed babies fell into error; they had been led to look only upon one method of feeding. Men who had done such grand work in the study of metabolism as Finklestein and others, and who deserve great credit for their

work, he did not believe would accept the calorimetric method of feeding infants. Some milk enthusiasts seized upon this idea for the first time through a visit abroad and have exploited it as a new method of feeding paramount in value and importance to any method yet devised. This had been reported throughout the country as a new method. It seemed absurd for a physician who was called to see a baby suffering from dyspepsia to write a prescription according to the calorimetric method.

Another mistake occurred in a too close adherence to the calorimetric method. Coal had a certain caloric value; sawdust had a certain caloric value; but no one would think of replacing the tissues of the baby with coal or sawdust.

There was another thing which always came to his mind in discussions of infant feeding; were they talking about dyspeptic or normal babies? Physicians, as a rule, have babies brought to them who are not only badly nourished but they are dyspeptic babies. Now he did not think the most ardent advocate of the calorimetric method would stop to estimate the caloric value of the food he was going to introduce into that baby suffering from dyspepsia and arthrepsia (?). The point was, get into that baby all that he will digest and assimilate, regardless of its food value. As an illustration he spoke of the reliance that was placed upon barley water which had a very low caloric value; yet how valuable it was. How much Europe might laugh at the refinements of milk and the hair splitting in institutions, yet how many men have tried and failed simply because it was too dogmatic. It was the deductive method instead of the inductive one. It was supposed that this creation of milk from the cow might more nearly represent the maternal product. In gross mathematics, it did; but it was not.

Another thing that always came to his mind when he came in touch with an ardent advocate of the calorimetric method of infant feeding was, how could one determine what the caloric value of the constituents of the milk was. Who knew? Did Finklestein and others?

One of his students was once asked about hydrocyanic acid, and answered that a drop of hydrocyanic acid placed on the end of a dog's tongue would kill a man in two minutes.

Dr. E. H. Bartley, Professor of Chemistry, Toxicology and Pediatrics, Long Island College Hospital, Brooklyn, N. Y., said he had listened to the discussion with the hope that somebody would tell how to estimate the caloric value of the food in infant feeding when that baby was passing a large amount of the food per rectum; how were they going to tell just how much that baby was fed? They could tell how much was being taken in by the mouth, but what part of it was the baby assimilating when so much of it was passed through the rectum? Dr. Bartley had observed that a large number of the children in the nursery of which he had charge came there in good physical efficiency but they did not thrive, because they did not get enough food. They should make what they believed to be the proper percentage for that baby and learn just what would agree with that baby; they could apply the calorimetric method in order to find out if the baby was getting enough. He thought one could tell by the appearance of the infant, its weight, etc., whether or not it was getting enough, just as well as they could by making these calculations.

The calorimetric method would not aid them very much because they did not know how much was wasted.

Dr. J. Warren VanDerslice, Instructor in Pediatrics, Rush Medical College, Chicago, Ill., said that the point Dr. Bell brought up was pretty well demonstrated, that was, that a high fat or a low fat fat had been positively demonstrated to exist; these fat curves had been demonstrated two or three years ago, although he said he might be mistaken about this. One year ago in a paper the percentage of fat was demonstrated in the protein curve regardless of the percentage of fat in the mixture.

Dr. E. H. Bartley, said he did not know whether he could add anything to the last paper, which had impressed him very favorably indeed. He thought they would finally all come down to the "try rule." A carpenter cuts a piece of timber and puts it up to see if it fits; if it fits, all right; if it does not fit he makes it

fit. Just so with infant feeding. They started with theoretical feeding; if the baby thrived on it, all right; if it did not then they abandoned that particular food and resorted to some food which would agree with the baby. They all agreed that it was better to start with a low fat and proteid in any difficult case and then to work up, first with one and then with the other, until the tolerance of fat was found for that particular baby. Then possibly they might apply the caloric method to see whether the baby was getting sufficient food. After all they reduced the whole thing to the "try rule." There was no certain rule for feeding difficult cases. He had adopted all sorts of methods of infant feeding. Proprietary foods he had tried and they sometimes agreed with the baby when the scientific foods did not. Condensed milk often agreed with infants probably because of the low percentage of fat; on this they got along for awhile. Then he changed to something else, such as a mixture of cow's milk and condensed milk until a tolerance was re-established. Lately he had had success in some difficult cases by starting with whey and then sweetening with condensed milk instead of sugar.

Start with a low fat and protein percentage and work them up to the child's tolerance. Start with whey of less than one-tenth per cent. (.1%) of protein and little more of fat.

He had a way of making whey which he thought might interest them. He took the whole milk and coagulated it with essence of pepsin at the body temperature. As soon as it was curdled he placed this on the fire and beat it continuously while the curd separated. The object of this was to wash out of the curd all of the fat possible. Sometimes this could be well done with an egg beater. He made some laboratory experiments to demonstrate what percentage of fat could be gotten from the whey from a four per cent. (4%) milk. The results of these laboratory experiments were interesting. He said he could obtain from two and a half to three and a half per cent. ($2\frac{1}{2}$ to $3\frac{1}{2}$ %) of fat from the whey. This, however, depended upon the vigor of the beating during coagulation. If one beat it rapidly, there would be more fat, but never more than three and a half per

cent. ($3\frac{1}{2}\%$). If he allowed it to curdle without beating it, he obtained less than one per cent. (1%) and generally about three-tenths to five-tenths per cent. ($.3$ to $.5\%$). The protein from good milk varied from eight-tenths to one per cent. ($.8$ to 1%). When it was prepared fresh, beaten well and strained, and the protein at once estimated, if it was allowed to stand over night, a certain amount of the protein separated out. If the food was at once prepared from the whey, one would get nearly one per cent. (1%) of proteid; he had taken as an average eighty-five to ninety one-hundredths of one per cent. If this was mixed with top milk it would be held in suspension, one could calculate on having about one per cent. (1%) of proteid. If one started to feed the baby with this whey it would in most cases get along very well on it for some time. In this whey there would be not quite one per cent. (1%) of protein, two and a half or three per cent. ($2\frac{1}{2}$ or 3%) fat and four and nine-tenths per cent (4.9%) of milk sugar. This can be sweetened with lactose. On this feeding he had seen babies thrive and gain a normal weight and be very comfortable, and in many cases where the modified mixtures did not work favorably.

Dr. R. B. Gilbert, Louisville, Ky., believed that *Dr. McClanahan's* paper showed a common sense view of infant feeding. Now mothers as a rule are not inclined to nurse their young. When one thought of the mother, he should think of the young; there were so many things that modify the mother's milk and make it unfit for the infant, that she must be carefully watched. Mental emotions, grief, anger, excitement of any sort, the food she eats, the stimulants she drinks, all modify the milk, and in a similar way the milk of the lower animal can be modified.

The doctor stated that by a mixed feeding the mother will be given more chances for social intercourse. *Dr. Gilbert* thought that any other kind of intercourse would be liable to happen. When it did happen it modified the milk seriously for eight or ten hours after. This was a point that was not much written about. He said he had seen two cases of severe gastric intestinal irritation following sexual intercourse; in one case the baby died of cholera infantum. Anything that

modified the mother's milk should always be taken into consideration. The nursing mother's milk for several hours following sexual intercourse contains a low per cent. of colostrum and an excess of casein.

DISCUSSION OF DR. MCCLANAHAN'S AND DR. PISEK'S PAPERS.

Dr. J. Warren VanDerslice congratulated Dr. Pisek upon his excellent paper, and said the only criticism he could make was in regard to the classification he offered. He thought that the sooner they got away from methods in infant feeding, the sooner would they be able to teach infant feeding properly. The sooner they got away from these methods, the sooner would they make advances. They had had methods, methods, methods; they had become so imbued with methods that methods alone have been employed in the teaching of infant feeding. Rather than teach methods, he thought they had better teach infant feeding. Teach the student what they knew; the rest would work out all right. That was to be the next step, and until that step was taken, there could be no advancement in the diet of infancy.

There was one point in Dr. McClanahan's paper: when giving mixed feeding to young infants he believed that additional meals for these infants was a bad thing and should not be employed. He believed that the only way to give these children mixed feeding, when the mother was not giving sufficient milk, was to give cow's milk immediately following the nursing. This admixture of cow's milk with the human milk made a composition that the infant, who could not digest cow's milk alone, could digest. It was his rule to teach that a child at this age that was to be given a mixed feeding should be placed at one breast; when the child had nursed ten minutes or so, take it from the breast and then give it all the cow's milk, whole or diluted, that the child would take. Make the hunger of the child the key to the amount. In an ordinary household it is impractical to get at the exact amount of milk a child will get from the breast. Rather than attempt to use an exact amount of the mixture, Dr. VanDerslice used hunger as a test; he al-

lowed the child to take any amount of whole or diluted milk after nursing. One should not forget that the law of supply depends upon the demand.

Dr. Alfred C. Cotton said he wished to add a word of compliment to the readers of both papers because of their redundancy in common sense. When there was a possibility of the mother's breast failing to give a sufficient supply, the value of the method of mixed feeding just described was great. One should always attempt to determine the child's tolerance for artificial foods. It should be remembered too, that we have to deal with doctors who recommend or allow bottle feeding; in doing this, the mother's breast became a pathological problem; with this was entailed an expense that many could not afford, as well as a retardation in development.

Dr. Pisek, he thought, had said all that could be said in that number of words, but he hoped that he would amplify somewhat what he had given them. The reason was, not enough time was given; he required more time. What he had given them in his paper were the things that must be taught; then there would follow less trouble in infant feeding.

In speaking of wrinkles, he said that a breast fed baby had dyspepsia in many cases because of numerous reasons; dyspepsia was not always due entirely to improper methods of feeding; it was sometimes due to the quality of the mother's milk. He had found as high as nine per cent. (9%) of fat in breast milk and the baby spitting up. This milk he had skimmed with advantage. He pumped the milk from the breast and then skimmed it.

In those cases with a proteid intolerance Dr. Cotton used sodium citrate, giving it with the milk, and it worked well.

Dr. I. L. Polozker, Lecturer on Pediatrics, Detroit College of Medicine, said that their experience showed that many babies were weaned even before secretion in the breast had become established. The teacher of obstetrics should tell more about the necessity of waiting and inducing the mother to nurse the baby if she could. The obstetrician was the first man on the job and he often recommended that the baby be weaned; he

should try to get the mother to wait a little and see if she could not successfully nurse the infant before she weaned it. The new-born could get along without food for a few days. If one was going to employ mixed feeding he should be very careful about it. Weigh the baby before and after nursing and the mother would often be surprised to learn how much milk the baby was getting at each nursing. The only necessity for the bottle in the baby's mouth was that it gave the mother more freedom. He knew of many young mothers who would not call in a doctor because they knew he was strongly against the use of the bottle. He, himself, was strongly against the use of the bottle when it was not required and when the child was getting sufficient milk from the breast. The danger in the use of the bottle was that it caused a lessened secretion in the mother's breast. The child at the breast caused an increase in the flow of milk.

Dr. Polozker thought that Dr. Pisek's paper was very instructive. It was very hard to teach the student how to feed a difficult case. If the student only knew how to feed an ordinary case, he would use judgment, and must use judgment, in feeding a difficult case. He advised that the baby be fed regardless of any scientific formula. Get the child first to digest a small amount of food, and then gradually increase the amount taken.

Dr. William C. Hollopeter, Medico-Chirug. College, Philadelphia, Penn., said he only arose to add his commendation to the two papers just read. In Dr. McClanahan's paper mixed feeding was referred to and here a great problem confronted them which was quite puzzling; the majority of the mothers were young and of a neurotic temperament and they were always anxious to supplement the bottle for social purposes. He advised that they should all try to get the mothers to nurse the baby entirely by the breast for at least six months; even after that period, the addition of the bottle would always result in having sick babies unless the breast be cut off gradually; the baby should be gradually weaned. After six months he

advised substituting the bottle one day; that was, give the baby the contents of one bottle only; do this for one or two weeks, then substitute another bottle. But usually the conflict was disastrous. They should continue to force the mother to adopt higher standards as a milk producer, or she must go back to the bottle. It was surprising how many mothers succeeded so well, but it should be remembered that there was great difficulty in maintaining the child on the breast and substituting one or two bottles a day.

Dr. E. H. Bartley supposed that it was the experience of all present to have met some old Granny, who, when she saw the first drop of milk from the breast was blue, and containing no fat, declared that the milk was no good. He had seen babies weaned time and again on the advice of physicians because the first drop of the milk from the breast was blue in color. They did not know that the first milk contained very little fat and that the last milk was rich in fat. That was a point that should be impressed upon the medical profession as well as the public in general.

Dr. Godfrey R. Pisek, speaking of mixed feeding, wondered why so many men weaned the baby so frequently. He did not believe that the recommendation to wean the baby came so frequently from those who taught infant feeding. He thought it was due to the advice of the obstetricians; they were the ones who were responsible for this. The members of the Society should make a special effort so to teach students, and to bring out this point, impressing upon them the importance of breast feeding; then they would know better and would not consent to have the baby weaned so frequently.

Another point about mixed feeding was that the baby should be started on a low formula. If one started on a low fat and proteid, and gradually worked up the formula, he would be less apt to have digestive disturbances. Alternate feeding might be often tried with advantage before abandoning the breasts altogether.

Dr. Alfred C. Cotton believed that sexual excesses spoiled the milk of the mother. He recalled a paper written by him on "Sexual Hygiene." He spent a long period of time, making many observations, and worked harder on this subject than he did on any other. He gathered together fifty-one (51) cases in which an acute dyspepsia was undoubtedly due to sexual intercourse with at least one death. One instance he recalled. The man was a travelling man, and of a very amorous temperament. Every time he came home the baby was sick. The baby finally died in convulsions accompanying gastro-intestinal disturbances, the result of a riot of connubial bliss after an absence from home of six weeks. The results of his observations were that intercourse never had any beneficial effect upon lactation; however, upon animals it did. In certain countries the tickling of the vulva with a feather stimulated the flow of milk from the cow's udder. Sometimes they blew on the cow's vulva to stimulate the flow of milk. Such stimulation or satisfied sexual desire had an influence upon the lacteal secretion. Gynecologists paved the way long ago by controlling the sexual act. There was certainly a great and deleterious change produced in the mother's milk resulting from sexual intercourse. We all know how frequently the milk will leave the breast in a mother whose husband had been lost. Grief had an inhibitive effect upon the lacteal secretion.

He said this was a broad subject, and that they must come back to natural feeding of infants.

Dr. Godfrey R. Pisek, speaking about the feeding of the infant and the nursing mother, thought the Society was on the right track; the nursing mothers were too often restricted; they were allowed everything they did not like, and that did not seem right to him. If they wished to keep up the flow of milk, the mother's diet should not be too restricted. Give them what they were used to having before they began nursing the baby. At the same time it should be remembered that what was wrong and harmful in the ordinary course of daily events would be

wrong and harmful during lactation, and should be excluded as a food for the nursing mother.

Dr. Charles Douglas, Detroit, Mich., said that he had been much impressed in listening to the papers that had just been read with the fact that there could not be anything more confirmatory of the necessity for the existence of their organization, or of the beneficial results which would follow, than the discussion they had just listened to on infant feeding. They had all no doubt been greatly benefited by the papers read and the discussion which had followed. Each of them had learned a little from the other. It was commonly understood that when there was a discussion taking place on infant feeding, that there would be a scrap before the end of it. But they had been very gentle and had become more in love with each other. That was the feeling, and it could not be anything else because they had all come to the one opinion, the result of good common sense and experience. What had been done, paved the way for better feelings, and that of itself was particularly worth working for.

DISCUSSION OF DR. I. L. POLOZKER'S PAPER.

Dr. Effa P. Davis, Medical Superintendent, Chicago Maternity Hospital and Training School for Infants' Nurses, in considering what students shall be taught regarding the value of proprietary infant foods and condensed milk emphasized what Dr. Polozker has said about a thorough understanding of their composition and that they are not safe without the addition of a proper per cent. of fat, a timely addition of fresh cow's, goat's or mother's milk and fruit juices with the scaling down of any excess of sugar and with due consideration of the presence or absence of free starch.

Having been put on guard regarding their deficiencies students may safely be taught the value of these articles of diet, which I believe the essayist rather underestimates when he would limit them to convalescence and traveling.

This underrating of proprietary foods and condensed milk is I believe, a common error of the advanced pediatrician in

these later years when the modification of cow's milk by percentage methods has become such a favorite form of artificial feeding and we must take care not to be so dogmatic in our discredit of other methods that the young physician is checked from making proper use of them, thus preventing him from being at all times in a position to do the best for his patients.

It is true that badly proportioned and improperly administered these foods give bad results, they are expensive and the rules laid down by their manufacturers for their use cannot be safely followed in many cases, if in any. But notwithstanding all these facts, if pediatricians refuse to use condensed milk and many of the standard proprietary infant foods under any consideration except for travel or emergencies such as the doctor mentions, I believe there will be many infants' lives needlessly sacrificed and many a physician may have the mortification of seeing a bad case taken out of his hands and cured by some one not so prejudiced.

Many of the standard proprietary foods such as Mellin's, Benger's, Nestle's, Malted Milk, Eskay's and Imperial Granum are extremely useful if they are kept in their proper place and condensed milk is often a life-saving measure with certain infants.

Infants showing no evidence of rickets or scurvy have grown up under my supervision fed with condensed milk as a basis of their food for the first six or eight months and I have seen this in the work of others, even by mothers with little or no direction from physicians.

My attention was first turned to the great value of condensed milk by the late Dr. Christopher of Chicago, about ten years ago, when he advised its use in infants with gastritis more or less chronic from the inability of the child to take any formula of cow's raw milk.

I believe I have saved not a few such cases from death or a protracted marasmus by its use, and when I have a child brought to me on condensed milk and not doing well, before I make a radical change or tell the relatives that the whole trouble lies in the fact that condensed milk has been used, I

go over the case much as I would if it were on a modified fresh milk formula.

First the quantity of milk given in twenty-four hours is compared with what should be about right compared with weight, age and condition; then, how has the food been given as to intervals of feeding, quantity at each feeding, etc.? Have errors been made in the sterilization of bottles, nipples, and other utensils? How has the milk been preserved after the can has been opened? What brand of milk has been used? "Eagle Brand" is not the only good one by any means, and lastly, how long has the child been fed on it?

When all these questions have been settled and all the errors corrected as far as possible, the child will often return to a proper state of health and if the food has not been given too long without the addition of fresh cream, or milk or orange juice as correctives a perfectly satisfactory result is often obtained.

Students should be taught to resort to condensed milk when fresh milk properly modified will not agree or is rejected till signs of gastritis appear, and when a doubtful supply of fresh milk must be depended upon, and in cases when the infant has been successfully fed on it for a longer or shorter time, always keeping in mind the necessity of adding the proper per cent. of fat, and correcting the effect of a cooked food by the addition of antiscorbutic elements. With these corrections condensed milk is most satisfactory and will produce healthy rugged children.

The usefulness of proprietary foods to so modify fresh cow's milk as to render it digestible to the baby must not be overlooked. Just how and why this modification takes place we can leave to Dr. Roach and others who are working out the science of it, but the practical thing to teach students is that they *do affect* in some way the cow's milk and render it more easily digested by the average baby. Again the quantity required to do this varies with different babies and it is always something of an experiment how much to add. It is not safe to take the proprietors' rules, as they nearly always direct too

large a quantity. The addition of even two or three teaspoonsful to the amount of milk given in 24 hours is often enough to change a white or greenish undigested lumpy stool to a smooth brownish-yellow mass that gives evidence of good digestion.

No proprietary food that is used without fresh milk is safe for a long period of time, but because they are not is no reason why they should not be utilized to assist in the assimilation of the elements that are so satisfactory in cow's milk.

Buttermilk and fat-free milk are neither good for long periods when their deficiencies are not met, but that is no reason why we should refuse to make use of them for certain conditions always keeping in mind that there must be a reckoning with the deficiencies, and that is just why the students should be taught to use proprietary foods and condensed milk with a correct understanding of their merit, as well as their deficiencies, and by prescribing them in the same intelligent fashion that he prescribes any food formula he will get results he cannot get without them in certain cases.

It is always wise to gradually change the food after three or four months by adding an ounce of fresh milk daily and readjusting the formula from time to time by a method of subtraction and addition till the child by degrees has become able to take fresh cow's milk and drop the more artificial foods without checking digestion or satisfactory growth, which an abrupt change always does to a greater or less extent.

Dr. J. Warren VanDerslice said that the ethical questions regarding the advocacy of the various proprietary foods were such that it become necessary for the teacher to condemn rather than sanction their use. He thought this a good practice because of the liability of the student to interpret any sanction of their use in certain cases for limited periods to mean the recommending their use in a more general way.

Still on the other hand they all saw cases in which at one time or another they had used these same proprietary foods. In the therapeutic feeding of infants there were cases in which it was advantageous to use lactose, maltose or dextrose in the combination that was found in some one of these foods and

further it was impossible to purchase reliable dextrose or maltose in many localities and in these cases one was doing an injustice to the patient to allow the ethics to interfere in the best interests of the patient. The need in infant feeding was to teach infant feeding in a scientific manner, to get away from the teaching methods; to teach the diagnosis of the various forms of indigestion as the recognition of proteid, fat, lactose, dextrose and maltose as the primal cause for the disorders.

Dr. H. M. McClanahan said there were two reasons why proprietary foods were used; first, the persistent and ingenious advertisements that they saw contained in the standard magazines and elsewhere; second, the modern method of getting the advertisement directly in the home. He had been informed by an agency in Omaha that a part of their work was to clip from the papers the birth reports; therefore, if one wished to get a complete list of the homes with babies, this commercial agency could furnish the list and then it was very easy to get introduced into the homes any patent medicines or proprietary foods. After the baby was born, the mother would receive a very ingenious advertisement of a proprietary food, a so-called panacea for the baby.

Another reason was that fifty per cent (50%) of the mothers did not care to nurse their babies; these patented foods were recommended to them as being good for the baby. The mother and the patent food worked the problem out.

Dr. McClanahan believed that as long as these reasons existed the use of proprietary foods in infant feeding would continue and the situation must be faced.

There were instances of children being fed upon Mellin's Food; they thrived well, and this permitted the mother to wean her child at once. He recalled the case of a woman who fed her infant upon Imperial Granum and thought this was a panacea for her baby. Knowing how expensive it was, Dr. McClanahan suggested that she take the same amount of flour as she did of the Imperial Granum and try this for a week. She got equally

good results. The flour had an equally good food value as had the Imperial Granum.

Dr. Godfrey R. Pisek thought that the topic of proprietary foods was one that they would all agree upon. There was something to be said, however, in explanation of their action in the alimentary canal. Students should be taught the reason why infants temporarily do well on them, for they could then in practice modify the foods they intended giving, making this food conform in action to that which takes place in the use of the proprietary foods. In other words, some of these foods served a mechanical purpose in breaking up the curds of cow's milk. Condensed milk on the other hand made by evaporation through hot air was so changed physically and chemically that it did not form a rennet curd with hydrochloric acid when it entered the stomach. The mass was not jellified and passed into the duodenum. If the student was taught that he could so modify fresh food, he then would not resort to the use of proprietary foods. The young practitioner usually tries a certain formula; if it does not succeed at once, he feels helpless, he becomes discouraged and recommends a patent food. The reason for this is, that as a student he was not given sufficient instruction or else he is not resourceful enough.

Dr. Henry I. Bowditch said there were one or two things that impressed him. One related to the change produced in the milk by the addition of proprietary foods; for everyone had seen disastrous results follow.

Scurvy had been mentioned in connection with proprietary foods, but the reader of the paper did not mention that heat was to a certain and large extent a factor in scurvy, should be, boiling and cooking the milk. He said he heard *Dr. Morse* tell of a Mellin's Food man who claimed to know how to feed babies; he could feed babies that *Dr. Morse* or other men could not handle. *Dr. Morse* was called to see a case that had been fed on Mellin's Food by this man and diagnosed a perfectly

typical case of scurvy, the first case of scurvy from this cause that he had ever seen.

Dr. Richard B. Gilbert, Louisville, Ky., said there was one thing to be said about infant foods, that they should be condemned. He agrees that the proprietary foods should be condemned as proprietary medicines should be. Yet with all his positive prejudices in that direction now and then condensed milk, made by Borden Condensed Milk Co., served him well. In Kentucky they had had a revolution in the matter of milk supplies. Two years ago they had a symposium on milk. A health officer arose and stated what filthy conditions he had discovered in his investigation of certain dairies. Dr. T—— also made some remarks about the condition of the milk from a chemical standpoint, from the standpoint of the animal's condition, the handling of the dairies, the modifications made, the subjection of wholesome milk to a temperature of 90° F. and so forth. Since hearing so much about milk he said he felt like condemning every form of milk. Dr. Gilbert said he had grown children who now scarcely know the taste of milk since they were weaned from their mother's breast.

Condensed milk in some instances he thought served a valuable purpose. In the discussion much had been said about the ratio between the proteids, fats and so forth and accurate data had been set down as to how to feed with the different milks. If the milk was a fixed quantity, then they could proceed with a definite and mathematical rule. But when they considered the great and wonderful modification that occurred in cow's milk it has shown that it was far from being a fixed quantity. The perfect and rigid rules as obtained in Boston he liked; but in Kentucky there was a too careless handling of the milk.

He reported an experience he had three years ago when he was called to attend the child of a German; this parent had a dairy with two hundred (200) cows. He was called at three o'clock in the morning because of the severe illness of the child and because he wanted to see the results of the medicine he

had ordered. He was invited to see the boys milk the cows. Flies swarmed around in myriads. The men were dirty and the cows were filthy. The milk was taken and strained thoroughly; this of itself served to show how unclean it was. There was found in it particles of dung, flies, larvae and other things. One fly in a pail of milk will poison the entire contents; the atmosphere circulating through the milk, under such conditions, was enough to infect it. Dr. Gilbert believed that they should not go too far in condemning condensed milk. Without doubt if one could obtain a definite preparation of pure milk, it would serve a valuable purpose.

He reported an instance that occurred in his practice; an infant was born at the seventh month when the mother was taken suddenly ill and was unable to nurse the baby. The child was very delicate. Yet for four months the infant was on no other food than condensed milk modified by the addition of lime water and occasionally bicarbonate of soda; if curds appeared then citrate of soda was given. That child thrived nicely.

Dr. Alfred C. Cotton said that they all were affected by the wave of medical ethics that had come over the profession. He believed they were running backwards. It was their duty to relieve disorders and to promote nutrition. He did not know more than half a dozen of his acquaintances who were so ethical that they would not give a patented food to the baby if they knew it would benefit it. He of course could see why the medical profession had set its face so strongly against the introduction of these methods of feeding. He called attention to a proprietor of a food concern out in the west who had a trained nurse well versed in infant feeding with a certain proprietary food. He would wait upon a physician and tell him that if he had any trouble in feeding the baby and if he required any assistance, he had a nurse whom he would be glad to furnish to feed the infant for a few days. In this way this particular proprietary food was introduced.

DISCUSSION OF DR. BELL'S PAPER.

Dr. E. H. Bartley asked *Dr. Bell* why he made so much of the olein content of the fat.

Dr. Godfrey R. Pisek said that the reader of the paper recommended making this test in practice, and teaching it as a simple procedure. He felt sure that no one would consider the test a simple one. The test might give correct results, but it was not practical for the average man away from the facilities of a laboratory. It is necessary to put something in practitioners' hands that the average man could use.

Dr. J. Finley Bell, in answer to *Dr. Bartley's* question, said that it was important not because of the relative percentage of olein, stearine and palmitin, but because it enabled one to determine the solubility of the fat, its melting point and its digestibility. The more insoluble the fat was, the higher palmitin and stearine percentage relatively to the olein, and the further away one got from the kind that was contained in human milk.

The simple modification of milk, the mathematical end of the business, was simply a matter of education prior to the medical education. What he tried to bring out was that the analysis was an intelligent beginning in mathematical procedures. The end results would be accurate and whatever the modifier wanted to make it.

Dr. Bell thought that if any man did much of this work, he certainly would evolve his own method of mathematical procedures; that man would work out his own formula, the one that suited him personally. But starting at this work was the important thing.

With regard to the complexity of the work, *Dr. Bell* said it was necessary to find these things out before one started. The analysis was simple and required no advanced chemical knowledge and only a moderate laboratory equipment.

Dr. Charles Douglas, Professor of Diseases of Children, Detroit College of Medicine, Detroit, Mich., asked if, having found the percentage and knowing the fixed percentage, the results were sure results.

Dr. Bell replied that the results were not sure results. An analysis of milk from a dairy did not give one a line on that dairy.

Dr. Douglas said that the thought occurred to him that if they followed the method of doing this work, if they would succeed, or if the feeding would be a success.

Dr. Bell replied that that was true in a relative sense.

Dr. Douglas asked if this applied to different years, irrespective of the physical results.

Dr. Bell said that a knowledge of the physical needs of the infant was absolutely necessary for a successful application of this method.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

TUBERCULOSIS IN CHILDREN.—HEINRICH ALBRECHT (*Wien. klin. Woch.*, March 11th, 1909) discusses the relative frequency of primary intestinal tuberculosis and of infection of inhalation in the light of the pathological and anatomical facts observed by him in the course of 3,213 *post-mortem* examinations made upon children during the last six years. Of the 3,213 children, 1,060 (or 33 per cent.) proved to have suffered from tuberculosis in some form or other. Of the tuberculous cases, 191 (or 18 per cent.) were children under a year old, 691 (or 65.2 per cent.) were between 1 and 6 years old, and 178 (or 17 per cent.) were between 6 and 12 years. In the article under consideration the term "primary intestinal tuberculosis" is limited, as in Henle's definition, to an isolated tuberculosis of the intestinal mucous membrane or of the mesenteric glands in which the most careful examination fails to reveal the smallest doubtful scars at the apices of the lungs or hardenings in the bronchial lymph glands. Only 7 (or 0.66 per cent.) of the whole number of cases proved to be cases of primary intestinal tuberculosis, 5 of the cases being in children aged from 1 to 12 years, and 2 under 1 year. Heller of Kiel and von Beitzke of Berlin found primary intestinal tuberculosis in at least a quarter of the tuberculous children upon whom they made *post-mortem* examinations; the differences in the two sets of figures may depend either upon the small number of cases upon which some of the statistics are based or upon the prevalence of different local conditions at Vienna, or upon a combination of the two causes. Albrecht describes the pathological condition which he found to be typical, starting from the cases in which the tuberculosis was an accidental condition found at the autopsy but was not the cause of death. In these early cases the condition was a chronic caseating tuberculosis of the tracheo-bronchial glands, usually of one side only, the remaining groups of glands being either normal or only affected to a slight degree. In later stages the path of infection could be traced either to one or both sides of the trachea, or to the lymph nodes of the anterior mediastinum, or downwards to the lymph nodes on the

diaphragm. Careful examination of the lung tissue also showed in nearly every case one or more isolated caseous areas, varying in size from a millet seed to a hazel nut. A fissure in the centre of this area corresponded to the bronchiolus. Such areas were seen at different stages; thus a process of calcification at the centre and fibrous shrinking from the periphery inwards might reduce the area to a small scar, or it might spread by the eruption of fresh tubercles at the periphery, and more alveoli might be affected. The caseous lymph glands always corresponded in position to these tuberculous areas on the lungs, which are, according to the author, the seat of the primary infection. The few instances in which such areas could not be detected are to be explained either by the supposition that such an area had been present but had diminished and practically disappeared, or that the bacilli had gained entrance to the lymph stream through the lungs without causing an essential change at the point of entry. Most probably these primary lung areas are situated on the smallest lymph nodules of the bronchi, and the method of infection is aërogenous. Two other modes of infection are theoretically possible—the haematogenous and the retrograde infection from the tracheo-bronchial glands. The haematogenous method is negatived because it is opposed to the conditions found in the child organism, for which the law enunciated by Cornet in the case of guinea-pigs holds good—the law, namely, that wherever tuberculosis breaks out it localizes itself in the first place in the lymph glands of the region, whether or not a tuberculous affection arises at the point of entry. The second or retrograde mode of infection is negatived by the fact that the anatomical changes in the areas in the lungs were always older and more advanced than those in the lymph glands. The next point dealt with is scrofula of the lymph glands of the neck. Except in three cases the author has never found tuberculosis of these glands without some affection of the lungs and without either a more advanced tuberculosis of the tracheo-bronchial lymph glands or one on the way to recovery. The three exceptions were, two of tuberculous ulcer of the face and one of caseous affection of the tonsil. In considering the spread of

tuberculosis by the haematogenous method the fact is emphasized that the author has never examined *post mortem* a case of tuberculosis of bone without being able to find signs of old or healed tuberculous changes in the lungs or bronchial glands, nor a case of tuberculous meningitis without some old tuberculous area being present somewhere in the body, especially in the lymph glands—facts which speak against the probability that during childhood tubercle bacilli can frequently escape from the intestine into the blood without inducing any characteristic change on the intestine or the mesenteric glands. The predisposition to phthisis which results from infantile tuberculosis may be due to the injury to the lymph circulation caused by the destruction of lymph glands, or it may be partly due to the production of a state of tuberculo-toxicosis; or, hypothetically at least, it may be suggested that the widespread tuberculous lymphadenitis of childhood may be the cause of the gradual development of the habitus phthisicus.

A CASE OF RHEUMATOID ARTHRITIS IN A CHILD AGED TWO AND A-HALF YEARS.—DR. J. PORTER PARKINSON (*British Journal of Children's Diseases* and *Australian Medical Gazette*). D. G., aged 2 years and 4 months, was admitted under my care into the Queen's Hospital for Children on September 26th, 1908. The personal and family history were good; there was no history or evidence of syphilitic taint, or of tubercular disease. Three months before admission she began to suffer with pain and swelling of both wrists and the left ankle. She was confined to bed, and other joints, such as the knees and left ankle and elbows, became involved. She took food well, but wasted considerably, and as no improvement occurred she was brought to the hospital. On admission she was pale, with an earthy tint of skin, anæmic and wasted, weighing only 20 pounds. The skin was wrinkled and inelastic, and there was a brown staining of the deeper layers of the skin, diffuse on the whole, but here and there with detached areas on the dorsal surfaces of both feet, the front of the legs and the front and inside of the thighs, also on the adjacent part of the lower abdomen. This was identical in character, though not in distribution, with the staining seen in rheumatoid

arthritis in the adult. The ankles and some of the tarsal articulations, wrists and knees, were swollen and extremely tender. There was some diffusion into the joint cavities, but no grating on manipulation; there was also much peri-articular swelling extending above and below the articulations. It was soft and boggy to feel, but did not pit on pressure; the skin was slightly reddened. Skiagraphs of the joints showed not the slightest changes in the bones. The lymphatic glands in the groins and axillæ were much enlarged and tender, some being as large as a small walnut; they were elastic and freely movable. There was some beading of the ribs and general signs of rickets. The heart and lungs were normal. The abdomen was enlarged from flatus; the liver appeared of normal size, but the spleen extended four finger breadths below the costal margin and was unduly hard. The urine contained no albumin. Examination of the blood showed 30 per cent. hæmoglobin, with 1,000,000 red corpuscles and 5,000 leucocytes to the c. mm. The temperature on admission was normal, but began to fluctuate daily; on September the 29th it reached 103° F., and though normal in the morning generally reached 101° F. in the evening. The joint troubles continued, and by the middle of October the temperature began to show regular exacerbations lasting four or five days, with intervals of comparative apyrexia. Thus from October 17th to the 22nd the evening temperature rose each evening to 104° F.; from October 22nd to the 27th it was normal; from October 28th to November 7th, except for one day, it rose each evening to 104° F.; after this the rises were less high, though from November 10th to the 17th it rose from 102° to 103° F.; after this the fever abated. During the febrile periods all the symptoms were much more marked, the joint swellings increased, and the spleen and lymphatic glands also became larger. The child lay in a drowsy condition and seemed to be suffering from a general poisoning. After the temperature fell the spleen and lymphatic glands lessened in size, and by January, 1909, appeared to be nearly normal. The joint swellings also diminished, leaving great muscular weakness, but no tenderness or adhesions. The child was in much better general condition, and the weight which had fallen to 18 pounds, rose to 20 pounds.

FEEDING OF THE SICK INFANTS.—SEVERIN LACHAPELLE believes that we do not consider the nourishment of the sick infant as of enough importance. We cannot successfully combat infections without a resisting power in the organism that can only be sustained by thorough nourishment. The well child also must have enough food to cause his growth, and this condition is present in the sick room as well. All children would be able to pass through their sieges of infectious disease if they were sufficiently fed and nourished. Complications appearing after the infection is spent require nourishment to resist them and the infectious agents must be destroyed so that they may never be able to renew their ravages in the organisms. Owing to the loss of appetite due to fever, the stomach rejects nourishment. We must then make use of the rectum by injecting eggs and broths, and by the use of suppositories of peptones in powder. We must add the glycerophosphates, and lecithin to reconstitute the precious nervous energies of the patient.—*Le Journal de Médecine et de Chirurgie*.

ON THE ÆTIOLOGY AND TREATMENT OF HYPERPYREXIA IN CHILDREN, by DR. JAMES BURNET, Edinburgh. Two cases were described. The first was in a child aged 7 years, with a tuberculous family history. The temperature reached 107° F., and was effectively treated by pouring cold water over the head and neck from a jug. The child was well next day, and no cause was discovered. The second was a boy, aged 8½ years, suffering from acute rheumatism, who was being treated with ten-grain doses of sodium salicylate. The temperature rose to 107.2° F. The same treatment was adopted, followed by the application to the head of sponges wrung out of iced water. The patient made an excellent recovery. The hyperpyrexia in this case was ascribed to the development of pericarditis, though Dr. Burnet thought that the salicylates might have something to do with it, especially as the high temperature was accompanied by a maniacal state. He was doubtful as to the safety of applying an ice-bag to the chest in such cases, for this might produce a great deal of shock and perhaps collapse. He recommended tepid sponging in the first instance, followed by the application of cold to the head by sponging or ice-bag. Should these measures fail the cold douche over the head and neck should be used, the head being held over a basin or bath.

BOOK REVIEWS.

THE DISEASES OF CHILDREN, by Henry Enos Tuley, M. D., Professor of Obstetrics, University of Louisville, Medical Department, Visiting Physician Masonic Widows and Orphans Home; Secretary Mississippi Valley Medical Association; Ex-Secretary and Ex-Chairman of the Section on Diseases of Children, American Medical Association, etc., Louisville, Ky. 600 pages, handsome cloth bindings, \$5.00. Sheep \$6.50 with many illustrations. Southern Medical Publishing Co., Baltimore, Md., 1909.

This volume contains a full and complete exposition of the world's best and latest knowledge in pediatrics. The work is written especially for the student and general practitioner, and presents a description of the diseases of children as they are seen by the busy doctor, and contains a well balanced presentation of the science of pediatry.

Dr. Tuley firmly believes the question of infant feeding to be one of the most important with which the general practitioner has to contend, and he, therefore devotes more space to this subject than is usually found in modern text books. The author lays special stress on the necessity for certified milk commissions and urges the establishment of milk depots where certified milk may be had. Dr. Tuley handles the subject of "Infant Feeding" in a masterly manner, giving the latest information on a most important subject in a manner that is simple, easily grasped and readily put into practice.

The author considers each diseased condition in a methodical manner, giving special attention to the dietetic and hygienic management. He devotes sufficient space to etiology and pathology, leading up to a full consideration of the more directly practical subjects of diagnosis, including differentiation and treatment, which is thorough and definite. We cordially recommend the work to our readers.

COMMON DISORDERS AND DISEASES OF CHILDHOOD, by George Frederic Still, M. A., M. D., (Cantab.), F. R. C. P. (Lond.),

Physician for Diseases of Children, King's College Hospital, Physician to Out-Patients, Hospital for Sick Children, Great Ormond Street, Honorary Member of the American Pediatric Society. Cloth. 731 pages. Postpaid, \$5.50. Oxford University Press, 35 West Thirty-Second Street, New York.

The author's aim has been to give a complete but succinct description of the every-day and commonplace disorders of infancy and childhood; those affections for which children are brought to the out door clinics of children's hospitals, as well as the cases seen in the routine of a busy practice. Therefore the title of the work may be fairly taken to embrace the contents of the work under consideration, although at a glance through the pages one will note not a few disorders are included which cannot by any stretch of the imagination be regarded as every-day or common disorders.

Diagnosis, prognosis and treatment occupy an important place in this work, which will be found particularly interesting to the young practitioner, indeed it will be more valuable to him than the ordinary text book, as it comprises and covers just those disorders which are likely to be encountered in practice, and the author treats them in a practical way. He has evidently made careful study of the numerous drugs employed in the treatment of disorders of infancy and childhood.

We are not called upon every day to criticize a book so prolific in answers to the innumerable puzzling questions which daily confront us in handling disorders of infancy and childhood. We trust this work will have a wide circulation, and we feel that we cannot too highly commend it to those interested in pediatry, or to the physician in general practice who necessarily has to treat this class of patients, and for the physician who has been in practice for a number of years and has seen many cases that questioned his skill—this little volume will help him wonderfully to find answers to many knotty problems. It is a veritable mine of information on the subject of pediatry.

PEDIATRICS

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Vol. XXI

DECEMBER, 1909

No. 12

EDITORIAL.

HOURS OF SLEEP FOR CHILDREN.—A recent issue of the *Lancet* publishes the results of a careful investigation into the hours of sleep allotted the younger pupils at forty of the great public schools of England, and other in this country. The author reaches the conclusion that in most cases in the former country a very inadequate amount of sleep is secured by this class of boys who need it most, and points out certain measures

by which the defect could be remedied if thoroughly recognized. Although school conditions are very different in this country, where a comparatively small percentage of the population send their children away from home to the large boarding schools which parallel the "public schools" of Great Britain, still, those who have charge of the young people between the ages of twelve and sixteen will find pertinent matter in some of the contentions embodied in this article.

Obviously, in considering this question it is at once necessary to determine approximately the number of hours' sleep which a child of the age mentioned requires. On this point, disregarding for the present the personal idiosyncrasies which frequently appear, medical and physiological authorities seem to agree that less than nine hours per day is something of a risk, and the opportunity for ten is advisable. Prof. C. S. Sherrington, the distinguished physiologist, condemns in no uncertain terms the attempt to confine young boys to the allowance of sleep which is sufficient for a grown person. He points out that the child's bodily life is run more expensively than the adult's; since bulk increases as the cube and surface as the square, the child has relatively far more body surface than the adult, and has in consequence to produce more body heat to maintain its temperature. The combustion in the child is more active than when growth has ceased. "During sleep the chemical processes are reduced, in the case of CO_2 output to one fifth, so that the organism during sleep may be said to have its fires banked instead of being run under forced draught. But sleep is not only a respite from chemical change, it is a mechanical rest as well, which is of equal importance during the years of growth. The heart and respiratory mechanism require for their efficient working a rest period to their working hours. Most of a boy's growth in stature is done in bed, and there mental and physiological recreation goes on most effectively. Without plenty of sleep the activity of the waking day is like a house built on sand—in constant danger of breaking down and giving way." Prof. Sherrington puts the required sleep at the age mentioned at ten hours.

Sir James Crichton-Browne, whose study of over-pressure in school gives him the right to speak with authority, writes: "Sleep is more intimately connected with brain growth than with brain function. In the years of the highest cerebral activity in adult life least sleep is required; in the years of low functional activity but rapid growth, most." Elsewhere he has written: "From birth, when the brain is growing rapidly and life is almost a continuous sleep, onward till manhood, when growth is at an end and when only a third of existence is given to sleep, the increment of growth progressively diminishes; and *pari passu* with this diminution in growth goes a reduction in the demand for sleep made by the system, so it might perhaps be said that eight hours in the twenty-four constitute the amount of reparative sleep needed by the full-grown brain, and that all sleep beyond that amount prior to maturity is germinal sleep connected with the processes of growth and development."

In view of these facts, it is obvious that to stint the growing child in the matter of sleep is to imperil the processes of development upon which his future happiness and usefulness depends. Yet there is little doubt that with most short-sighted wisdom many parents and teachers do encourage children between the ages of twelve and sixteen to adopt hours of study which seriously interfere with the desirable ten hours' sleep. The fact that the children themselves express no desire for more than they get is no argument whatever, for, like other bad habits, the habit of taking insufficient sleep is easily cultivated, especially by those high-strung, sensitive children who are apt to be ambitious scholars and prone to sacrifice to class advancement the very factor which they peculiarly need.

Contrary to the English conditions, the large boarding schools of this country aim pretty generally at long hours of sleep for their younger pupils and it is the home where the lesson pointed out by this article needs most to be taken to heart, if we would raise up the next generation with a sound moral equipment of mind and body.

INDECIPHERABLE CHIROGRAPHY.—“A damn'd cramp piece of penmanship, as ever I saw in my life. I can read your print hand very well, but there are such handles, shanks and dashes that one can scarcely tell the head from the tail. It is very odd, I can read the outside of my letters where my own name is well enough. But when it comes to open it, it's all—buz. That's hard, very hard; for the inside of the letter is always the cream of the correspondence.”—From “She Stoops to Conquer,” with apologies to *Gaillard's Medical Journal* from which a part of the following is borrowed.

We trust that none of our readers will take this particular quotation as personal, but the school of experience warns us that it is extremely easy to unintentionally give offense, and therefore we premise that the reflections are directed solely to those who write for the scientific press generally and for the dispensing pharmacist as a daily occupation, and to the medical editor as occasion demands. Many years ago when we first, with temerity, occupied the Editorial chair, we used to wonder if we were not fast returning to the customs prevailing during the days of Cadmus and Europa, when men wrote their epistles in hieroglyphics with thick ink.

Ideographism represents ideas by symbols independent of sounds. This differs from Phonetism, which seeks by arbitrary letters to represent the sounds of a spoken language, and which in conveyance of the idea leaves less to the imagination. Since the almost universal use of the typewriter by professional men, we gradually see the ideograph being relegated to the Egyptologists along with the bones of the antideluvians who used pictures instead of writing when they wished to convey either instruction, emotion or sentiment to their fellow men. Even now the Egyptians are beginning to use the typewriter.

When we attempt to read an article or letter written in (a careless) illegible handwriting we are much embarrassed; for there are so many things a hieroglyph may be intended to represent, and if the author be a plain matter-of-fact scientist, he may become angry when he is represented in clear, but cold modern type as saying something quite different from what was

intended, and from what would have been interpreted, had his chirography been clearer. A lively imagination, then, must be held to the curb and by a strong hand if either the peace of mind of the translator or the choler of the author are to be considered.

When the corner druggist attempts the compounding of a prescription written in hieroglyph, there is little trouble, for he is a man of one idea and he puts up the prescription accordingly, but as there is many a "mute inglorious Milton" engaged in ordinary pursuits, so the prescription writer in hieroglyph may find to his sorrow, when the medicine is delivered, that he has to administer a witches' broth as hot as the good Dominie Sampson was forced to swallow from the ladle of Meg Merrilies.

It is unfortunate, even regrettable, that some of the most renowned, most widely known and revered men in the medical profession although using the characters of the common alphabet, when writing an article or letter forget to cross a "t" or to dot an "i" or to add a part of a letter, or the last part of a syllable of a word; for the hieroglyph did mean something if one only knew what it was.

PLEASING FELICITATIONS.

Since the appearance of our inaugural issue—the October number, we have been overwhelmed at the mass of congratulatory letters received from the leading Pediatricians from the four corners of this great broad land, and even from foreign lands. These letters contain more than mere congratulatory complaisance, they have in them the true ring of genuine hearty fraternalism and support. To say that we are proud of such assurances of encouragement, is only to speak in guarded terms, for we are grateful and appreciate the felicitations conveyed, we could not be natural human beings and feel otherwise. Our only fear is, and we tremble with temerity, lest we fail to make good and live up to all of the many predictions for the future usefulness and high plane set for PEDIATRICS by its many admirers, but so long as we can keep our hat on, and it still fits, we will be found striving to make PEDIATRICS all that our well wishers expect.

CODDLING OF CHILDREN AND THE INFECTIOUSNESS OF COLDS.

—The crusade now being undertaken against tuberculosis has clearly brought to the minds of everyone that the only intelligent treatment of the disease, is by means of fresh pure air, and a good diet. In all parts of the world Sanatoriums, conducted on those principles, are springing up, at home and abroad, where one would think the climate was hardly suitable for the out-of-door treatment, the system is to be carried out on a large scale. But, after all, it should be remembered if proper care is taken of children when young, and if their bringing up is carried out more with the view of hardening them, and thus rendering them proof against the ubiquitous microbe, the need of sanatoriums would be much less than is at present the case. It is a fact, both instructive and pertinent, that in many of the coldest portions of the globe, colds are unknown. Dr. Cook and his men, when in the Arctic regions, although they underwent exposure of every description, never once suffered from colds, but no sooner had they set their foot on their native shore, than they, one and all, caught severe colds. The experience of other Arctic explorers is the same. It seems then, probable, that there may be something in the theory of the infectiousness of colds, and that we shall have to give up our traditional belief to the contrary, however much we may have treasured it. If the infection theory be the true one, and if it be frankly accepted, a radical change in the method of treating colds must necessarily follow. If exposure is not the direct cause, but merely acts by so lowering the vitality that the germs can gain an easy foothold, the rational treatment must be to build up and harden the constitution in such a manner that it will refuse to harbor the germs of disease. Mothers and nurses are too much afraid of fresh air and ventilation, but when they understand that the hothouse plan of rearing children will produce a nation of weakly, delicate individuals, susceptible to every complaint that is prevalent, they will doubtless see the error of their ways.

EPIDEMIC CEREBRO-SPINAL MENINGITIS.—Up to the present time the number of cases of this disease has lagged behind that

reported for last year. What the factors have been that have caused this is not yet known, for it was reasonable to expect a far more extensive invasion this winter than last.

Nor are we out of the woods, for it may truly be said that winter has hardly begun, at least in our more populous cities. Of the 85 epidemics that have been recorded in the United States at least 35 have occurred in the winter, whereas 23 have been confined to the spring months, the remainder have occurred in winter and spring. Epidemics have occurred in the summer in other countries, but not as yet in the United States; and mild winters have not been entirely immune. This emphasizes the necessity that no false hopes of security should be indulged if any effective prophylaxis is to be maintained.

Foremost among the facts which repeated studies have emphasized is the overshadowing importance of the meningococcus of Weichselbaum as an etiological factor in the production of this disease. The more or less constant presence of the meningococcus in the nasal secretions is also to be borne in mind, and a third truth, confirmed by many reports, is that direct personal contact plays no uncertain role in the spread of the infection.

Thus cerebro-spinal meningitis emerges from the position of a hidden, mysterious disease to take its place with other well-known infectious diseases, and in order that its ravages may be curtailed its control by well-known hygienic procedures alone is necessary.

Early notification; strict isolation; disinfection of rooms and articles in contact with the sick; the exclusion from school of children in infected houses and bacteriological control of the nasal secretions—these are the necessary steps to be insisted upon if any progress is to be recorded.

AN EXPLANATION AND APOLOGY.

An apology to Dr. Abraham Jacobi. We are moved to make an apology to the foremost Pediatrician in the profession and to New York's most prominent citizen for misinterpreting the purport of his letter of some weeks ago, in reply to an invitation to become a collaborator. We translated from his handwriting a word, we deciphered as, collaborator, when he intended the word to be "contributor" and we apologise for our too eager imagination, and remove his name from the editorial page.

PEDIATRICS

Entered as Second-Class Matter at the Postoffice at Burlington, Vermont.

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ORIGINAL ARTICLES

THE DYSTROPHIC CONDITIONS OF INFANCY AND CHILDHOOD.*

By ALEXANDER SPINGARN, A. M., M. D.,

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The physiologic mechanism of bodily growth and development remains one of the many unsolved problems of biology. It still eludes the scrutiny of him who would wrest from protoplasm its innermost secrets. The task of unveiling the mystery of growth is intensified by the fact that this important attribute of

*Read before the Pediatric Section of the Medical Society of the County of Kings, Sept. 22, 1909.

the primitive physical basis of life cannot be isolated from its other essential characteristics. Growth is not a distinct entity. In the language of mathematics, it is a function of many variables, such as nutrition, heredity, environment, adaptation, exercise, and other factors, some of which may still be unknown. Such being the difficulty that confronts the study of normal growth, how much greater must be the task of discovering the sources of its many pathological variations!

The phenomena of aberrant growth furnish one of the most abundant groups of clinical manifestations. So common indeed is their occurrence, that in many cases their importance is disregarded, and they are considered as falling within the limits of normal variation. The spontaneous character of growth, like that of life itself, has served to divert attention from its host of slight disturbances, and only the exaggerated forms of arrested development have been deemed worthy of careful study.

There is as yet no classification of the diseases of growth that can be considered sufficiently comprehensive, for no serious effort has yet been made to investigate the disturbances of growth as a separate category of clinical medicine. To the pediatrician the subject appeals with peculiar force, for he chiefly is brought into contact with the individual during the period of most active growth and development, and on him devolves the duty of recognizing, and, if possible, of controlling the numerous disturbing influences to which growth is subject.

By the term "Dystrophic Conditions" as used in the title of this paper, is included all those manifestations of disordered growth, whether inherited or acquired, whether involving the entire organism, or only certain tissues or organs. The expression "Dystrophy" has apparently been appropriated by the neurologist in designating the various forms of muscular hypertrophy and atrophy of neurogenic and myogenic origin. Apart from this mere mention of these types of anomalous muscular development, I shall not discuss this phase of the subject except to allude to the important role of heredity in their evolution. The extreme rarity during early life of gigantism, acromegaly, and leontiasis

ossia, is sufficient reason for excluding the discussion of these conditions from the scope of this paper.

In reviewing the etiology of the manifestations of abnormal growth, one readily observes the important part played by heredity. This is not only true of cases of dwarfed and giant stature that apparently "run" in the family, but is also true of the instances of disordered growth in the offspring of the insane, the syphilitic, the tubercular, the alcoholic, and the underfed. As one of the stigmata of degeneration, an undersized body is frequently the unerring index of a vitiated ancestral stock. The effect of privation in the relentless struggle against the odds of overcrowding, and its associated unhygienic conditions, operating through many generations, stamps its unmistakable seal upon an entire race or tribe.

But heredity is not responsible for all of the abnormal manifestations of growth. There can be little doubt that a vicious hygiene during infancy and childhood, particularly an insufficient and inappropriate diet, and a lack of fresh air, are important factors inhibiting a normal development. These are facts of empirical observation. The scientific demonstration of the influence of a bad environment upon the human stature has not yet been made, and from the extreme complexity of the factors that enter into the problem, it would appear as if such demonstration will never be possible. In fact, the study of normal growth is still in its infancy. The number of observations made upon the growth of children is so small, that one cannot assign to the figures any distinct scientific value. The most reliable results thus far obtained have been the measurements of body length and of the circumference and diameters of the skull. But exact figures as to the growth of the different bones of the skeleton at different periods of infancy and childhood, and the correlation of these figures with one another and with the total length and weight of the body, have not been worked out. The most epoch-making contribution to this subject has been that made by Prof. Rotch¹ on the radiographic study of the centers of ossification of the epiphyses of the long bones and of the small bones of the wrist

and ankle. This work has been so fully and ably presented in recent publications, that it is hardly necessary to make in this paper more than this brief allusion to it. The roentgenological study of the growth of the bones will accomplish more in placing the investigation of the physiology of growth upon a scientific basis, than any one other means of research. The effect upon growth of the various toxic conditions and of the multitudinous forms of disturbed metabolism, offers to the radiographer a virgin field for investigation.

It is a matter of common observation that malnutrition resulting from insufficient or improper food, deficiency of fresh air, acute and chronic disease, and alcoholic, nicotine and other forms of drug intoxication, has an appreciable, if but slight, effect in retarding growth. But its influence in this respect is less apparent than its effect in preventing the normal increment in weight. In this class of cases, it is practically impossible to isolate any one factor as chiefly causative of retarded growth. It is usually a combination or summation of perverse hygienic conditions that must be held responsible for this condition.

In sharp contrast to this indefinite but nevertheless important group of cases must be placed those diseases in which arrested growth is an important phenomenon, if not the essential characteristic. Of these the most striking examples are endemic and sporadic cretinism and achondroplasia. There is an intermediate group in which a stunted growth is an accessory and less apparent manifestation. To this class belong rachitis and inherited syphilis.

The term "rachitic dwarf" has been frequently applied erroneously to cases that are distinct instances of achondroplasia. Nevertheless it is well recognized that rachitis may interfere with growth to a greater or less degree. One of the chief osseous changes characteristic of this condition is the increased and irregular proliferation of the cartilage cells at the epiphyseal junction, with the production of the familiar knobby swellings. If this process is severe, the linear growth of the bone is retarded and the total stature is accordingly shortened. The extent of this dwarfing is further exaggerated by the bowing deformities of the diaphyses. Holt observes that he has frequently measured rachitic

children during the third year of life whose height was six inches below the average for that age.

Shortening of one or more limbs of an infant may be the result of an osteochondritis occurring as one of the lesions of inherited syphilis. If seen early, this condition may be clearly recognized in the small globular tumors at or near the epiphyseal cartilages of the long bones. Unless arrested by appropriate treatment, the process may go on to suppuration with consequent destruction of the epiphyseal cartilage. The bone ceases to grow in length and a shortened limb is the natural sequence. Another form which this lesion may assume is the separation of the epiphysis with an apparent paralysis of the limb, a condition known as Parrot's disease, or syphilitic infantile pseudo-paralysis. It is quite obvious that the syphilitic virus has a profound influence in retarding the development of the entire organism, as may be seen in the lesions of the skin, nails, teeth, etc., but it is the belief of Rotch² that most of the cases of infantile atrophy that are associated with an inherited luetic taint are rather to be attributed to an impaired nutrition resulting from improper feeding.

Passing from this intermediate group of cases to those forms of disease in which dwarfism is the most prominent characteristic, one encounters a multitude of forms that have been subjected to many confusing and widely varying classifications. The most recent and apparently the best of these is that which has been furnished by Theophil Dieterle,³ who classifies these cases as follows:

1. Sporadic cretinism depending upon an anatomic or functional absence of the thyroid. Of this there are two kinds: (a) congenital myxedema depending upon an inborn deficiency of the thyroid, and (b) infantile myxedema arising during infancy through some acquired injury or disease of the thyroid.

2. Endemic cretinism, found in certain mountainous districts, and associated with goitre and deaf-mutism.

3. Chondrodystrophia (hypoplastica, hyperplastica, and malacia).

4. Osteogenesis imperfecta.

5. Patau's dwarfism.
6. Genuine dwarfism, and
7. Mongolism.

This classification is sufficiently comprehensive to include all of the known varieties of stunted development, with the possible exception of some of the cases of infantilism, of which there are several types.

Chondrodystrophy, or as it is commonly but erroneously termed, achondroplasia, is essentially a disease of the long bones or those of endochondral formation, arising during intra-uterine life from some cause as yet unknown. Its pathology was first worked out by Kaufmann⁴, who distinguished the three varieties, chondromalacia foetalis, chondrodystrophia hypoplastica, and chondrodystrophia hyperplastica. All of these forms are congenital, although the lesions may not be apparent until some time after birth. These lesions consist essentially in a disease of the cartilage, with a resulting impairment of bony formation. Bones that develop in membrane are not affected. There may be an arrested development of the cartilage cells occurring during intra-uterine life, with the result that ossification does not occur in the long bones. In this type, which is characterized as chondromalacia foetalis, the foetus is almost always born dead, with soft pliable limbs. This is the class of cases that has hitherto been termed "foetal rickets," but which bears absolutely no relation to rickets. This class represents, likewise, the majority of the cases, for practically very few of the cases of chondrodystrophy survive birth. In the hypoplastic variety, the chief characteristic is the arrested growth of the diaphysis, which is likewise variously deformed; there is an absence of normal compact bone, whose place is taken by a spongy bone with irregular Haversian systems and with varying thickness throughout the shaft. The marrow cavity is eccentric and the ends of the diaphyses show a peculiar cupping instead of the even line of union with the diaphysis (Bullard and George).⁵ The epiphyses are irregular in their shape and in the period of their ossification. In the hyperplastic variety there is an enormous overgrowth of the epiphyses. The joints are variously distorted. In some of the

cases of chondrodystrophy there is practically no distortion of the skeleton, whose principal lesion is the arrested development of the long bones; in other cases there are pronounced deformities, consisting of bow-legs, coxa-vara, scoliosis, kyphosis, lordosis, etc. During the past few years, many cases of chondrodystrophy have been reported in the literature, but these have been mostly of youths and adults. Only in extremely rare instances has the case come to the observation of the physician during the period of infancy. Jacobi and Parrot have reported cases showing the infantile stage of the disease. I have been fortunate enough to observe one of this early type of the disease, which it is now my privilege to present before the Society. This case, apart from its extreme rarity, is particularly interesting, inasmuch as it shows also the lesions of inherited syphilis, and possibly indicates some causal relationship between the two conditions. The history of this case follows:

J. A., female, was born Oct. 31, 1908. The mother is 29 years old, American, of Irish extraction. The father is 33 years old, an American Hebrew of English parentage. The maternal grandparents are living and in good health. The paternal grandmother died at the age of 75 from senility; the paternal grandfather died at the age of 65 from chronic nephritis; he had long suffered from bronchial asthma. The parents are not related, have been married 9 years, and have two other children, a girl 8 years, and a boy 5 years of age. The girl is tall and thin and has enlarged tonsils. The boy is healthy and stout. The mother has had one miscarriage $4\frac{1}{2}$ years ago. There is a rheumatic history in both parents and in their antecedents. There is no obtainable history of syphilis in either parent or in their immediate forebears, or of gonorrhea, tuberculosis, insanity, nervous disease or consanguinity. During the last gestation the mother was well except for occasional pains in the abdomen. During the fifth month of pregnancy, she was frightened by a photographer's flashlight. Since giving birth to the child, she has lost considerably in weight. The infant was born at term after a small pigmented nevus on the occiput, and a faint desquamating had ruptured four days before. Primary respirations were

slightly delayed. Weight was estimated at $7\frac{1}{2}$ pounds. The only thing unusual noticed at birth was the presence of snuffles, a small pigmented nevus on the occiput, and a faint desquamating eruption about the anus. This eruption persisted until the infant was four months old. The cord fell off at the tenth day, at which time there appeared an icterus that lasted three days. At this time it was noticed that the right arm was slightly limp and partly rotated inward. This was attributed by the physician



FIG. 1. J. A. Case of achondroplasia with congenital lues. This picture shows the dwarfed extremities, the prominent forehead, the broad root and depressed bridge of the nose, and the protuberant abdomen. The facial expression is bright as distinguished from that of a case of sporadic cretinism.

in attendance to a birth palsy. The arm remained in this condition for one month, at the end of which time the infant began gradually to use it. At the age of 9 months the right arm was still weaker than the left and was rotated inwards.

There was nothing abnormal noticed about the head at birth, but at the second month it was observed that this was getting ap-

parently larger and the forehead was bulging. Until it was 3 months old the infant was fed at the breast. During this time it was quite restless, and would pull its head away frequently from the breast, apparently on account of interference with sucking. It slept but little at night and cried a good deal. It was then weaned, because the mother thought that her milk did not agree. It was at first fed on diluted condensed milk, and then on modified cow's milk, so that when 5 months old it was getting



Fig. 2. J. A. Same case as in Fig 1. Note the lordosis and the slight scoliosis in the lower thoracic region and the kyphosis in the lumbar region.

4 ounces of milk and 3 ounces of barley water every three hours. Orange juice was added to the dietary at the 8th month. The lower central incisors erupted at the 8th month and the upper ones one month later. The infant was moderately constipated. When 7 months old she contracted pertussis which lasted for 7 weeks and was complicated with a slight attack of broncho-pneumonia lasting for one week, when the infant was

8 months old. Until the present time her head has apparently been getting larger, particularly in the region of the forehead, and the temples have become less hollow. The veins of the head have always been prominent. The child has apparently grown in length very slightly, if at all, since birth, but has gotten stouter. Her limbs particularly have appeared stunted. Since the fourth month the child has slept well, has noticed her surroundings, has had no apparent defect in sight or in hearing, but has not been able to sit up or to hold up its head. The mother had noticed that the abdomen was protuberant and that the back was deformed. At the age of 5 months the glands in the groin were perceptibly enlarged.

The infant was first seen by me when 9 months old. (Figs. 1 and 2.) It was unable to sit up or to hold up its head, which was apparently large, with a high bulging forehead, a large anterior fontanelle, no craniotabes, and with markedly prominent cephalic veins. The skin of the face as well as of the rest of the body was of the characteristic café au lait pallor, but the facial expression was as bright as that of a normal infant of the same age. The eyes were wide apart and the root of the nose was broad and the bridge depressed. Snuffles were present. There was a faint branny desquamation of the skin above the left eyebrow. The upper and lower central incisors were present. The head measurements were as follows: circumference $45\frac{1}{2}$ cm., diameters—interparietal, $12\frac{1}{2}$ cm., intertemporal, 12 cm., fronto-occipital, $14\frac{1}{2}$ cm., and sub-occipito bregmatic, 14 cm. The body length was $58\frac{1}{2}$ cm., and the weight was 4.94 kilograms (10 pounds, 14 ounces). The spinal column was markedly deformed, (see Fig. 2.) There was a moderately rounded kyphosis of the entire lumbar region and a slight lordosis and scoliosis in the thoracic region. There were no rachitic manifestations in the conformation of the ribs and chest, but the latter was appreciably flattened and its circumference was 33 cm. The abdomen was large and bulging and its circumference $36\frac{1}{4}$ cm. The lungs were normal, the heart rate was 120, of normal force and rhythm. Thyroid gland could not be palpated, nor could any enlargement of the thymus be detected by percussion. The lower border of

the liver was felt one finger's breadth below the free costal margin and the spleen was palpable to the same extent. The cervical and inguinal lymph nodes were slightly hypertrophied. The most striking characteristic of the infant was the stunted condition of the limbs. Both arms were 21 cm. long; the upper arm $7\frac{1}{2}$ cm., the forearm $\frac{1}{2}$ cm. and the hand $6\frac{1}{2}$ cm. long. The legs were each 23 cm. long. The passive movements of the arms and legs were remarkably free, the muscles about the joints offering but slight resistance to the motions and the ligaments being extremely lax. Active motions of the right arm were diminished, and the latter was held in a position of slight inward rotation. The pupils were equal, reacted similarly to light and to accommodation and there was no nystagmus or strabismus. The knee-jerks were slightly exaggerated. The urine was normal. Blood was not examined.

The diagnosis of this case pointed to the co-existence of two conditions, namely, inherited syphilis and achondroplasia. The presence of snuffles, the depression of the bridge of the nose, the café au lait discoloration of the skin, the history of a desquamating eruption about the anus, the presence of a slight desquamation above the left eyebrow, and the enlarged cephalic veins all pointed to the former condition. The characteristic dwarfing of the extremities, the laxity of their ligaments, the deformity of the spine and the prominence of the sinciput all pointed unmistakably to achondroplasia. The prominence of the forehead gave one at first the impression of hydrocephalus. This bulging of the frontal bone has been attributed to the premature synostosis of the bones at the base of the skull. This condition was formerly considered one of the pathognomonic features of chondrodystrophy, but this view has been abandoned, for the premature synostosis of the tribasilar bone is found in other conditions. Jacobi⁶ has observed it in cases of cretinism. The arrested growth of the base of the skull causes the brain in its development to encroach more and more upon the vertex, which accounts for the high and bulging forehead seen in cases of chondrodystrophy, so that in the infantile cases the skull strikingly resembles that of a case of hydrocephalus, and is apt to suggest the mistaken diagnosis of this disease

(Fig. 1.) The coexistence of inherited syphilis and chondrodystrophy simultaneously in the same patient, which has also been observed in one of the three cases recently reported by Fussell, McCombs, de Schweinitz and Pancoast,⁷ may be more than a mere coincidence, and suggests a possible etiological relationship between a luetic heredity and chondrodystrophy. There is no treatment that is known to prevent the lesions or stay the progress of the latter condition. In this patient an active antiluetic treatment was instituted through the use of mercurial injections, and these together with a regulated diet, plenty of fresh air, and phosphorus internally, have ameliorated the general condition in the short time during which treatment has been possible, although there has been as yet no appreciable effect upon the growth of the long bones. No radiographic study of this case has yet been made.

The second case of chondrodystrophy that I have the opportunity of presenting represents the type and stage of disease as usually seen in the large clinics. The patient, M. E., was first seen by March 21, 1909. He was then 15 years and 9 months old. A native of Odessa, Russia, and a Hebrew, he came to this country nearly three years ago, just after his father, who had been a wholesale coal dealer in affluent circumstances, had died from tuberculosis at the age of 43. The mother, who is now 42 years old, was married at the age of 17, and has borne 9 children. There were no miscarriages. The first child, a male, is now 24 years old and healthy; the second, a girl, died at the age of 6 months from summer diarrhoea; the third is a girl, now 21 years old and in good health; the next two offspring were females who died at the ages of 11 months and 3 weeks respectively from gastro-enteric disturbances; the present patient is the sixth child; the succeeding children are a boy now 16, a girl now 13, and a girl now 11 years of age, all in good health. None of the other children show any abnormalities either in growth or development. There is no history of any similar condition in the family, or of consanguinity, syphilis, goitre, rheumatism, insanity or other nervous disease, or of tuberculosis on the maternal side. The patient was born after a normal labor and nothing unusual was

noticed about his appearance. He was breast-fed until 14 months old, got his first teeth at 10 months and began to walk at 11 months. When 2 years old he had convulsions and an attack of pneumonia lasting 12 days. It was at this time that the parents first observed that the child was not normal, that his legs were bowed and weak and that all of his limbs had not grown apace with the rest of his body. He was taken to a physician, and was subsequently seen by many prominent specialists. He was treated with phosphorus, massage, aerotherapy, sand and mud baths, and various forms of hydrotherapy for the next eight years. When six years old he ceased growing in height, but his head and trunk and the thickness of the long bones have continued to develop. Treatment has had no effect upon his condition. The accompanying photograph was taken when he was one year old, and shows him seated in the chair. The abnormal shortness of the arms is apparent. (Fig. 3.)



Fig. 3. M. E. Case of achondroplasia, seated. Age, one year. Note the dwarfed condition of the arms, and the intelligent facial expression.

He now goes to Evening High School, where he is studying architectural drawing, progresses well with his studies, is of amiable disposition, and of more than the average intelligence

for a boy of his age. His muscles are extremely weak; he cannot walk two blocks without getting fatigued, and he suffers from frequent pains in his legs. The movements of his arms are restricted, and owing to the extreme laxity of his wrists, he drops things frequently. During the past 3 years his back has become more deformed. Two years ago he was operated upon in the Washington Heights Hospital, with the view of straightening his legs; an osteotomy of both tibiae was performed. This did not result in any improvement. In fact, his legs have not been as straight since the operation as before. His appetite is good, his



FIG. 4. M. E. Case of achondroplasia. Same patient as in figure 3. Age 16 years. Note the normal size of the head and trunk, but the dwarfed condition of the extremities, the deformities of the latter and the great breadth of the articular extremities of the long bones. Note the outward rotation and posterior displacement of the tibiae.

bowels are regular, he sleeps well, and his sexual development is normal.

In his appearance one observes the characteristic picture of the dwarfed stature of chondrodystrophy, with the head and trunk of normal size, but the limbs extremely shortened. Both back and lower limbs are markedly deformed (Figs. 4 and 5). He weighs 32.95 kilograms (72½ pounds). The other measurements are as follows: Height, 1.10½ meters; head, circumference 55.5

cm.; interparietal diameter 16 cm.; occipito-frontalis diameter 19 cm.; sub-occipito bregmatic diameter 17 cm.; thorax, circumference, expiration 68 cm., inspiration $72\frac{1}{2}$ cm.; breadth, expiration $25\frac{1}{2}$ cm.; inspiration $27\frac{1}{2}$ cm.; depth, expiration 21 cm.; inspiration 23 cm.; abdomen, circumference at umbilicus 61 cm.; right arm, length 49 cm.; upper arm 20 cm.; forearm 14 cm.; hand 15 cm.; left arm: length 50 cm.; upper arm 20 cm.;



Fig. 5. M. E. Achondroplasia. Same patient as in figure 4. Note the marked kyphosis and scoliosis in the thoracic region.

forearm 15 cm.; hand 15 cm.; right leg, length measured from the anterior superior spine of the ilium to sole of foot, 46 cm.; thigh 19 cm.; leg 24 cm.; left leg: length 44 cm.; thigh 18 cm.; leg 23 cm. The following table contrasts some of the principal measurements with those of a normal boy 16 years old:

	Weight.	Height.	Head.	Chest.
M. E.	32.95 kilos.	110.5 cm.	55.5 cm.	72.5 cm.
	72.50 lbs.	43.5 in.	21.8 in.	28.5 in.
Normal boy	56.09 kilos.	166.5 cm.	55.5 cm.	79.2 cm.
	123.7 lbs.	65.6 in.	21.8 in.	31.2 in.

His head corresponds to that of a boy 16 years old, his weight to that of a boy 11 years old, his height to that of a boy 6 years old, and his chest to that of a boy 14 years old. His

spinal column presents a pronounced degree of kyphosis and scoliosis in the thoracic region. The long bones, in addition to their shortening, are remarkably distorted. The articular ends are without exception greatly hypertrophied and deformed, with the result that the contour and mechanism of the joints diverge widely from the normal. In addition, many of the ligaments are extremely lax, with a resulting excessive mobility in the joint. This is particularly noticeable in the wrist and in the joints of the hand. The latter, which shows the characteristic trident appearance of the fingers, can be extended upon the forearm almost as much as it can be flexed. The shaft of the humerus is thickened and curved outward in its upper half. The lower extremities show a marked degree of deformity. There are coxa vara, genu valgum and outward rotation and backward displacement of the tibia. These changes are somewhat more pronounced on the right side. The external malleolus extends downward farther than normal, the feet are broad and rotated outward, and pronounced flat-foot is present.

At my request, Dr. Charles Eastmond of Brooklyn, N. Y., has made a careful radiographic study of this case and I am indebted to him for the following report of his analysis, and for a splendid series of X-ray photographs, three of which are here reproduced, Figs. 6, 7, 8.

(To be continued.)

A CASE OF ENCEPHALOCELE.

By LOUIS FISCHER, M. D.,

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William Cohn, age 5 years was admitted to the Montefiore Home, June 2, 1906. He was a small sized child. Nutrition poor. The lower part of child as compared to upper part is abnormally small. When left alone child assumes a crossed legged posture. He can neither stand nor walk. Knee jerks markedly increased, the left more than right. No clonus. Manipulation of the lower extremities apparently causes pain.

Reflexes of Upper Extremities.—Triceps not obtained (probably on account of the rigidity). Wrist jerks are well marked. All abdominal reflexes are absent. No Babinski. Plantar stimulation on right side gives extension of all the toes, while on the left side, flexion of all results. Cremasteric reflex absent.

Pupils do not react to light. Right cornea is opaque. Sensation apparently preserved.

The child is able to move spontaneously his toes, ankles, knees, thighs and hands. There is a tendency toward a double drop foot and also a drop wrist on right side. There is considerable rigidity in all four extremities.

The Head.—The head is conical in shape, the apex being formed by a protrusion arising from the upper and middle part of the skull. This protrusion is about the size of a large coconut. The scalp over this tumor is covered with normal hair. On palpation the mass is soft, and arises from the anterior fontanelle and sagittal suture and goes as far as the posterior fontanelle.

The sagittal suture at its widest part measures about 6 inches. Tumor fluctuates and on pressure causes apparent pain, and in-

variably the toes and fingers are set in motion. At the posterior surface of the tumor is a follicular cyst. The child is apparently deaf and blind. Teeth are decayed. Child cannot apparently protrude tongue. There is a marked stomatitis. Nose is broad, obstructed and a discharge is present.

Palate is high arched, not cleft. Thorax well developed. Heart is rapid in action, pulse 110 per minute. Breathing puerile—no abnormalities. Abdomen small and narrow. Liver and spleen not palpable. Abdominal muscles are held rigid. Testicles small.

Further examination impossible on account of high temperature. The above history was given me through the courtesy of Dr. David Felberbaum and Dr. Weinstein of the Resident Staff.

William Cohn, 6 years old, was admitted to the Willard Parker Hospital, June 4th, 1907, suffering with diphtheria and croup. There was a slight exudate on each tonsil. Nasal discharge very slight. Croup disappearing in three days. Culture of nose and throat gave a positive Klebs Loeffler.

Father and mother both well developed, and both of moderate intelligence. Normal labor.

Family History.—There are ten living children out of eleven. One child died of diphtheria when 2½ years old. Nine out of these living children are physically and mentally normal.

During the eighth month of pregnancy, the mother fell, and was confined three weeks later. To all appearances a full term child. No forceps were used. It was a normal delivery and a silk string was used to tie off the umbilical cord.

The infant was breast fed one year. Has had measles and scarlet fever.

Child always nursed well and ate well. Functions normal. Mother says child can neither hear nor see.

Physical examination shows undersized child, fairly well nourished. A tumor mass in parietal and occipital region, the bony edge 2 inches above the external auditory meatus, and 3 inches above the glabella. The mass is soft, fluctuating, the only reaction from pressure—restlessness. No convulsions or slowing of pulse. No impulse of mass on coughing.

Pupils equal, react sluggishly to light. Apparently no sight or reaction to hearing.

Fingers pointed and tapering, athetoid movements of hands constant. Remainder of physical examination, negative.

Discharged, June 23, 1907.

The above data were given to me by Dr. Clarence C. Coryell, Assistant Resident Physician of the Willard Parker Hospital.

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INFANTILE HYPERTROPHIC PYLORIC STENOSIS. A CASE; OPERATION; RECOVERY.*

By MCGUIRE NEWTON, M. D.,

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Since the awakening of the members of the medical profession to the realization of the fact that the results to be obtained warrant as much care in the diagnosis of disease in children as in adults, there have appeared many reports of diseased conditions in early life which were hitherto unknown, or considered very rare. Such is the history of hypertrophic pyloric stenosis of infants, for the first report of a case, which was made in the latter part of the eighteenth century, remained as the only description of the condition for nearly one hundred years, while recently, reports of its occurrence have been so numerous, that it can no longer be considered as a rarity.

Of the cases so far reported, a large majority have terminated fatally. Where autopsy has been possible, examination has invariably disclosed the pylorus to be much enlarged and resembling cartilage, owing to the marked thickening of its wall, which encroaches on the lumen and as effectively closes it, as if atresia existed. This thickening is the result of hypertrophy of its circular muscle fibers, there being little if any increase in its other component tissues and there is no evidence of inflammatory or other pathological change.

The congenital origin of this hypertrophy is not an established fact, and as no record has even been made of its existence in foetal life, or in the newborn, and as its first symptoms do not usually appear before the end of the second week, I am inclined

*Read by title at the meeting of the Medical Society of Virginia, held at Roanoke, Va., October 5-8, 1909.

to agree with those who contend that this is not a congenital condition and that, therefore, it should be known as infantile, rather than congenital hypertrophic pyloric stenosis.

As to the cause, nothing is definitely known, but there are such a variety of theories that the most fastidious can be satisfied. In light of the fact that in a number of cases which have been reported, as well as in my own, excessive acidity of the vomit was sufficiently well marked to attract attention, I feel disposed to believe that the primary cause is some disturbance in the secretory function of the stomach resulting in hyperacidity of its secretion, which by its presence irritates the pylorus, stimulating it to spasmodic contraction. This may be intermittent and finally give way, or it may be continuous resulting in hypertrophy of its circular muscle fibers. In the one case there is functional spasm, in the other organic stenosis. I, therefore, believe that so-called simple pyloric spasm and hypertrophic pyloric stenosis represent the extreme forms of the same condition.

However different the views concerning its causation may be, the clinical history is so nearly alike in all cases that its description admits of but little variation. Vomiting is the most important symptom; it is always the first to be observed, and it persists until the obstruction is relieved. It usually begins in the latter part of the second or during the third week after birth of an otherwise healthy infant; occasionally it has begun as early as the first week, and likewise it has been delayed as long as the sixth week. At first it occurs only once or twice during the day, but the frequency soon increases until it follows nearly every feeding; those meals which are retained do not pass into the intestine but remain to be vomited with subsequent feedings. Its characteristics are that it is forcible or projectile often coming through the nose; it is unattended by nausea, coated tongue, or other evidences of disturbed digestion; immediate relief follows; the appetite is unaffected, and it is not influenced by alteration of diet or the administration of the usual remedies; the vomit contains no bile, and frequently is excessively acid in reaction.

The other symptoms are dependent on the vomiting and are: constipation, the stools being small, greenish yellow in color, con-

taining no fecal matter but consisting of the intestinal secretions; diminished amount of urine; and wasting, the patient losing flesh rapidly with the early development of marasmus.

Physical signs of great importance are disclosed by inspection and palpation of the abdomen. Owing to the empty condition of the bowels, the lower portion of the abdomen will be observed to be flattened or sunken, while its upper portion is prominent on account of the gastric distention. Stroking or irritating the skin will stimulate peristaltic movements of the stomach, which are plainly visible and often violent, the appearance being that of a small ball, rolling obliquely from left to right beneath the thin abdominal wall.

On firm palpitation, in cases which have been going on for a week or more, the pylorus can often be felt, giving to the finger the sensation of an enlarged lymph node. Where these signs and symptoms are presented, the diagnosis of pyloric obstruction is easy, though it is often difficult to determine whether there is simple spasm with temporary stenosis, or hypertrophy with permanent stenosis.

Favoring the diagnosis of simple spasm would be periods of intermission in the vomiting, which are accompanied or followed by increase in frequency of the stools, which often contain curds; slight if any loss in weight; disappearance for a time of the visible peristaltic movements; and inability to palpate the pylorus.

When the diagnosis of hypertrophy is positive, there is but one treatment, which is surgical, and that should be resorted to as soon as possible, for with every day's delay the chance of recovery is materially lessened. Of the operations that have been tried, viz: gastro-enterostomy, anterior and posterior, divulsion, pyloroplasty and pylorotomy, the posterior gastro-enterostomy seems to be the most favored, though each of the others has its champions.

When hypertrophy has occurred, the time for medication has passed, but it is possible that our drugs may prove effectual in preventing this condition, if we make a practice of examining the stomach contents in cases of persistent vomiting in young infants and resort to remedies to correct hyperacidity where it is found to exist.

CASE—REPORT.

H. G. L., Jr., white, male, four weeks old, was seen by me on June 11th, 1909, in consultation with Drs. J. D. Osborne and H. G. Leigh, of Petersburg, Va. Family history negative.

From a study of the chart, which had been kept by an exceptionally intelligent and capable trained nurse, who was with the mother during confinement, I learned that the delivery was normal; that artificial feeding with modified milk was begun on the third day, and that the infant did uncommonly well for the first seventeen days. During this time there was no spitting, vomiting, colic or other evidence of digestive disturbance. There were two or three stools every day, which were normal considering the character of his food. With the exception of an occasionally soap suppository no treatment had been indicated or used. On the eighteenth day he vomited twice; with the record of this is the note "acid in reaction." After this the vomiting persisted and increased in frequency and on the twenty-second day, or the fifth day of the vomiting, the nurse wrote "Vomited five times; there is no rule of retention, sometimes the food is vomited at once; sometimes retained until after the next feeding." From this time the frequency varied from five to nine times a day, with the exception of one day when the vomiting occurred only three times. There had been a steady loss in weight, amounting to twenty ounces in fourteen days. Very little urine had been voided. The number of stools had been reduced and were usually the result of enemata, and with a single exception had been recorded as "Small, greenish yellow with mucus." This exception was on the day following that on which vomiting occurred only three times, when a stool was described as "containing very little soft curd."

The usual remedies and variations in diet had been used without effect. On observing the patient for several minutes as he slept on the nurse's lap, there was nothing to arrest attention, other than the evident emaciation. Inspection of the abdomen showed it to be sunken or retracted in its lower part, while in the region of the stomach there was an apparent fullness or dis-

tention. Efforts at palpating the pylorus were unsuccessful, but the act of palpation stimulated violent peristaltic movements of the stomach, which were plainly visible.

The diagnosis of pyloric obstruction was made, but in the absence of the palpable pylorus we were unable to determine whether this was due to simple spasm or hypertrophic stenosis. We decided to resort to rectal feeding, using enemata of completely peptonized skimmed milk, and to allow nothing in the stomach other than normal saline solution for three days. When I saw him three days later I learned that he had vomited little of the normal saline, which from his appearance and increase in weight (ten ounces in three days) had evidently been absorbed from the stomach and carried directly into the tissues with the production of general edema. The amount of urine had been further diminished for one day and then considerably increased. The changes in the stools had been such as would be expected with rectal feeding. Through a catheter introduced into the stomach a considerable quantity of fluid was withdrawn; as some of this was wasted it could not be accurately measured, but it was more than had been given for several hours. The violent peristaltic movements were still apparent. While not positive I thought that I could palpate the pylorus, and consequently expressed the opinion that the obstruction was the result of hypertrophic stenosis and advised operation which was agreed to. The following day (June 15th) Dr. Stuart McGuire, of Richmond, Va., with the assistance of Dr. Otto Ramsay, of New Haven, Conn., performed the operation of posterior gastro-enterostomy, during which examination of the pylorus verified the diagnosis of hypertrophy.

The patient reacted well with but little shock. Twelve hours later he vomited a greenish fluid; this was repeated in about six hours. Nothing was allowed by mouth for thirty hours, when a dose of calomel was given; this was followed by an ounce of water. After repeating the water, at intervals of two hours, for four doses, feeding with predigested whey and water equal parts was begun; the quantity and strength of the food were gradually increased. From this time until he left the hospital, fourteen

days after the operation, his chart shows that he vomited but twice. During the summer he had to contend with two attacks of intestinal disturbance due to changes in his food. From both of these he made a good recovery and his father reports that at present he is thriving.

Before another issue of PEDIATRICS goes to press the joyous holiday season will have passed; we, therefore, take this opportunity to extend our sincere wishes for a

MERRY CHRISTMAS

to every reader of PEDIATRICS, suggesting that it be made a season not only of rejoicing, but also of high and holy resolve that we will henceforth make every endeavor to unify and harmonize our profession, manifesting ever the spirit of kindness and good-will—yes, the spirit of the Great Physician whose life and deeds of healing and helpfulness, of charity and blessing to humanity, Christmas commemorates.

THE STUDY OF INFANT MORTALITY.—The American Association for the Study and Prevention of Infant Mortality was organized Nov. 13, as a result of the conference by the American Academy of Medicine, for the discussion of that topic which completed a two days' session at Yale University. The Officers are:

President, Dr. J. H. Mason Knox, Jr., of Johns Hopkins Medical School, Baltimore; first vice-president, Prof. C. E. A. Winslow, Biologist in Chief of the Laboratory of Sanitary Research, Massachusetts Institute of Technology; second vice-president, Homer Folks, Secretary of the New York State Charities Aid Association; secretary, Dr. Henry I. Bowditch, of the Harvard Medical School; executive committee, the president and officers and Dr. Mary Sherwood, Baltimore; Dr. J. S. Neff, Director of Public Health and Charities, Philadelphia; Robert W. Bruere, New York; Dr. Helen C. Putnam, Providence, R. I. and Dr. John S. Fulton, Secretary General of the Congress on Hygiene and Demography, Washington.

THE STATUS OF THE SCHOOL CHILD.

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This resume of the school child was instituted with the desire to present as nearly as possible a composite picture of the school child.

The principles employed were: first, the use of school statistics as published by the various school boards; second, by correspondence with school superintendents, principals, teachers and medical inspectors; third, through personal investigation.

The statistics supplied by the various school boards are of such character as to be practically valueless. These reports could however, be made very valuable by a few additions which could be made at a slight expense of time.

First, there should be an enrollment, one enrollment for each child in attendance each year.

Second, the proportion which failed to finish each grade.

Third, the number of pupils in each grade.

Fourth, the number of pupils in each grade by ages.

Fifth, the number of overage pupils in each grade.

Sixth, the number of underage pupils in each grade.

Seventh, the number of withdrawals during each grade.

Eighth, the number of promotions in each grade.

Ninth, relation of nonpromotion to withdrawal.

Tenth, relation of overage to withdrawal.

Eleventh, in what studies nonpromotions were deficient.

Twelfth, number of months spent in the previous grade.

Thirteenth, number of pupils promoted and attending preceding year.

Fourteenth, number of pupils not promoted and attending preceding year.

Fifteenth, as nearly as possible cause for withdrawal.

The report of the United States Commissioner of Education shows there were 16,820,386 pupils in the common schools; 848,191 in the high or secondary schools for the year 1906 and 7, at a total cost of \$330,680,801 with a per capita of population cost of \$3.90 and a cost per pupil of \$41.60.

The following data were gathered by the author in twenty-six cities ranging in population from one hundred thousand to two million, from 904 schools selected at random, representing 369,290 pupils.

These were divided according to ages and grades as follows:
Table I.

The attendants by ages were,		The attendants by grades were,	
Under 7 years	62,261	1st Grade	73,864
7 to 8	46,774	2nd "	56,456
8 to 9	42,920	3rd "	52,357
9 to 10	40,429	4th "	47,610
10 to 11	39,092	5th "	41,575
11 to 12	35,468	6th "	32,723
12 to 13	34,208	7th "	24,982
13 to 14	27,876	8th "	18,346
14 to 15	18,592	1st year	9,160
15 to 16	10,127	2nd "	6,190
16 to 17	5,608	3rd "	4,147
over 17	5,935	4th "	1,880

The average ages in the several grades taken at the beginning of the school year were,

1st grade	6 years	4.5 months.
2nd grade	7 years	10.5 months.
3rd grade	9 years	2.6 months.
4th grade	10 years	4.1 months.
5th grade	11 years	6.3 months.
6th grade	12 years	4.3 months.
7th grade	13 years	4. months.
8th grade	14 years	1. months.
1st year high school	14 years	7. months.

In comparing the average ages at entrance to the various grades it is seen that the interval between the first and second grade is one year and six months. This interval decreases to a variation of six months between the entrance to eighth grade and first year high school. This interval cannot be taken as the average period spent in the grade, as the factor of nonpromotion must be considered.

In the first grade the average at the beginning of the school year is six years and four months; this average age including the nonpromotions of the previous year, whereas the average age for the pupil's initial entrance into school is minus six years and the average age of the second grade is seven years and ten months, this also including those who failed of promotion. In the eighth grade the average at the opening of school is fourteen years one month, while the average age at beginning of high school is fourteen years seven months. The explanation of this shortened period lies in the fact that the overaged pupil does not continue to the high school. In the first four grades there is a rapid increase in the number and percentage of overaged pupils—a congregating of those pupils who by reason of physical, mental or moral conditions are incapable of fulfilling the requirements of the curriculum.

The intervals between ages. By referring to Table I, it can be seen that the percentage of pupils in grade four as compared to grade one is but sixty-four, while it is probable that at least ninety per cent of pupils entering first grade finish the fourth grade. These differences are reconciled first by the fact that the first two grades are the hardest by reason of the percentage of promotions being the smallest and that the interval between grades is the largest with the smaller number of withdrawals from school. Second, by taking the United States census report for 1900 of the children in the cities covered by this investigation, it was found that the number of children aged ten to fourteen was 90.4 per cent of those five to nine years ago. The population for the individual years can only be estimated and as a basis for such estimation the average of those attending at the ages of seven, eight and nine years is taken. Thus, 43,374 is the estimated num-

ber of pupils entering the first grade for the first time of the pupils under observation.

The mortality during the school need not be considered as by further analysis of the U. S. census report it was found that there was an actual increase in the general population fifteen to nineteen years of age over those five to nine years of age. The explanation of this is attributed to the attraction to the cities of the rural population and immigration. Taking this estimated number as the unit the percentage of resistance in the public schools at ten years is ninety per cent, 11 years eighty-two per cent, twelve years seventy-nine per cent, thirteen years sixty-four per cent, fourteen years forty-three per cent, fifteen years twenty-three per cent, sixteen years thirteen per cent.

In the following table is given the normal age for the various grades as used in the calculations of this paper, the number and percentages of normal aged pupils, the number and percentages of overaged pupils, the number and percentages of the underaged and the percentages of promotions of the several grades.

TABLE III.

Grade.	Normal age for grade.		Number of normal age pupils.	Percentage of normal age pupils.	Number of overage pupils.	Per cent of overage pupils.	Number of underage pupils.	Per cent of underage pupils.	Percentage of promotions.
I	6 and	7 yrs.	65,001	88	8,863	12		...	68
II	7 "	8 "	40,073	71	11,473	20.5	4,910	8.5	82.3
III	8 "	9 "	32,252	61.6	14,346	27.4	5,759	11	85.4
IV	9 "	10 "	28,090	59	14,759	31	4,761	10	84.8
V	10 "	11 "	25,153	60.5	12,514	30.1	3,908	9.4	82.5
VI	11 "	12 "	19,863	60.7	8,410	25.7	4,450	13.6	83.2
VII	12 "	13 "	15,988	64	5,496	22	3,407	14	84
VIII	13 "	14 "	11,238	61.8	2,880	15.7	4,128	22	88

In the primary grades there is a constant increase in the number and percentage of overaged pupils—reaching a maximum of thirty-one per cent of the class in the fourth grade. In the following grades there is an elimination of the overaged pupil amounting at the entrance to the fifth grade to thirty-seven per cent of the loss, at the sixth grade to forty-six per cent, at the seventh grade to thirty-seven per cent, at the eighth grade to

forty per cent. The number of pupils withdrawing, who withdraw at the end of these grades because of non-promotion, cannot be estimated, but would increase the percentage of pupils in which overage would have occurred, for leaving school a considerable degree.

It is manifest that the factor of overage in a pupil is an element of vast influence in the elimination of the school child.

It may be taken as an axiom that the nearer a child is to the normal age for grade, the greater the probability of the pupil's continuance. Thus it may be said that an overaged child in the fourth grade has one chance in twenty-five of continuing through the eighth grade, while a child of normal age has one chance in three. This is the more apparent the higher the grade, in the high schools the overaged boy is a negligible quantity.

The number of pupils compelled to leave school because of general ill-health was but one in two hundred.

In the various cities there was a wide diversity in the ability of the school board to hold their pupils through the higher grades. This ability may be considered as due to the efficiency of the school system, the character of the general population or the probable life work of the pupil. The compulsory education law allows the withdrawal of the school child at the age of fourteen in most states, to what extent this is a factor in the elimination of the normal aged child is debatable. While there is a loss of fifty per cent between the eighth grade and the high school, the artificial separation of the two is largely accountable for the loss. The loss of the pupil corresponding to this age, thirteen to fifteen years, is largely distributed over the fourth, fifth, sixth and seventh grades.

The causes contributing to the deficiency in the school child, as given by the school principals as affecting each one hundred pupils was as follows:

Too much school work required	24
Too long school hours	5
Improper school seats	2
Poor preparation in earlier grades	35
Unsanitary school conditions	4

Too many pupils in school room	8
Too early admission to public schools	6
Too much outside work as the care of younger children or employment for economic purposes	16
Poor home environments	29
Ambitious parents	4
Poorly clad	10
Underfed—improper as to quantity or qual- ity	26
Insufficient sleep	14
Irresponsibility	10
Irregular attendance	3
Social distractions	28
Mental insufficiency—incapacity to do the work required in the curriculum	20
Poor physical condition	2
Physical defects	4
Bad personal habits	6

Physical examinations were made of 153,503 of these pupils.
In the following table is given a summary of those findings:

Number of cases examined	153,503
Number of cases of poor nutrition	8,856
Number of cases of enlarged glands	38,177
Number of cases of nervous diseases	1,541
Number of cases cardiac diseases	1,846
Number of cases pulmonary diseases	1,235
Number of cases of skin diseases	3,107
Number of cases of orthopedic dis- orders	2,985
Number of cases of defective vision	45,577
Number of case of defective hearing	3,320
Number of cases of nasal breathing	11,991
Number of cases defective teeth	55,174
Number of cases defective palate	1,169
Number of cases hypertrophied ton- sils	31,640

Number of cases of adenoids 10,049

Number of cases of defective mentality 2,051

These examinations were made by the regular school medical inspectors and under the rules laid down by the various school boards. The pupils were examined without the removal of any of the clothing, in a room set apart for such work which frequently was illy lighted and unsuited for the purpose.

A more careful examination was made of some fifteen thousand pupils by eminently qualified medical men who examined for defects of sight, hearing, the upper air passages and teeth only. The following table gives a summary of their findings, set in percentages for the more ready comparison.

DEFECTS ACCORDING TO AGES.

Age.	Norms.	Enlarged glands.	Hypert. tonsils.	Adenoids.	Defective teeth.	Defective vision.	Total defects per 100 pupils.
6 yrs.	19	40	34	17	58	6	155
7 "	14	42	34	19	60	88	163
8 "	15	35	31	16	55	23	158
9 "	20	28	24	14	50	27	143
10 "	24	19	20	10	45	33	127
11 "	28	16	18	8	41	32	115
12 "	33	10	16	7	30	35	98
13 "	34	7	14	5	32	32	90
14 "	35	7	13	4	26	36	86
15 " and over	37	6	12	2	19	35	84

DEFECTS BY GRADE.

Grade.	Norms.	Enlarged glands.	Hypert. tonsils.	Adenoids.	Defective teeth.	Defective vision.	Total defects per 100 pupils.
I	17	42	34	18	59	4	157
II	15	36	30	19	56	27	168
III	18	22	22	9	50	29	132
IV	30	10	18	9	44	34	115
V	33	8	14	5	28	32	87
VI	38	4	11	3	29	31	78
VII	37	5	12	4	23	36	80
VIII	34	4	10	2	32	42	90

The term "norms" is used for those pupils in which no defect of sufficient importance to warrant medical interference was

found. The percentage of defective eyes is limited to those in which the refractive error was so great as to justify the recommendation of the use of glasses. In the first grades many more cases of refractive error were found than are enumerated, but these were not considered if it was thought the pupil might overcome the deficiency. This accounts for the wide margin between the first and second grade, as it was thought that a child in the second grade needed glasses with the same refractive error that was passed in the first grade. It is seen that there is a marked increase from the second to the fourth grade and a gradual increase through the eighth. The increase by years is rapid at ages seven and eight and gradual later, the more increase taking place in the grades containing the higher proportion of average pupils. This increase was not found to be directly traceable to school conditions. First, because of the small number of normal eyes found in the earlier grades. Second, the average lighting facilities of the home were not equal to those of the school.

The hygienic condition of the home bore direct relation to number of inflammatory conditions of the eye as it was found that the inflammatory disorders were in direct ratio to the density of population. Refractive errors without correction appeared to be a cause for delinquency in scholarship—groups with poorer gradings constantly contained a higher percentage of refractive errors.

Defects of hearing were found in three per cent of pupils and bore a constant relation to the number of catarrhal conditions. It was found as a cause for delinquency especially in pupils in whom it had not been recognized by the teacher.

The disorders of the upper air passages and enlarged cervical glands reached the maximum at the age of six and seven years and in the first grade—the years in which the pupils were the more susceptible to contagious disorders. The decline in the number of these cases in the higher grades and years is not attributed to the elimination of the affected pupil so much as to the elimination of the disorders and an acquired immunity to the commoner infections.

Defective teeth reached the maximum at the seventh year. The decrease in the number paralleled the loss of the deciduous teeth, with a later increase in the acquiring of defects in the permanent teeth.

Physical defects as a whole had no apparent effect upon scholarship. Groups of good, fair and poor scholars were frequently compared with negative results so far as the total number of defects were considered.

The incidence of the commoner infections—scarlet fever, diphtheria, measles—was noted in 6,764 cases. In these it was found that in seventy-eight per cent of the cases occurring as initial cases in the family it affected the school child.

O God, make us what Thou wilt;
Guide Thou the labour of our hand;
Let all our work be surely built
As Thou, the architect, hast planned;
But whatsoe'r thy power shall make
Of these frail lives, do not forsake
Thy dwelling. Let thy presence rest
Forever in the temple of our breast.

—Henry Van Dyke.

CHOLERA INFANTUM.

GEORGE L. SERVOS, M. D.,

FAIRVIEW, NEVADA.

In cholera infantum we have a condition of infection of the intestinal tract in children, probably due to bacterial invasion, with intense vomiting, abundant watery stools, great prostration and emaciation, with a tendency to early fatality. It occurs most frequently with bottle fed babies, predisposed by poor hygienic conditions and infected milk. It may follow the ingestion also, of indigestible and irritating foods even after the child has been weaned, although the latter condition should probably be classed as cholera nostra, rather than cholera infantum.

Post mortem examinations show very little, if any, organic change in the bowel, the condition, as a rule being found to be of a catarrhal nature and it is probable that the profound depression is due to the absorption of the toxins rather than from any considerable local irritation. The toxins act upon the central nervous system and paralyze the action of the bowel. There is found cloudy swelling with degeneration of the liver and other large glands, and more or less degenerative conditions of other organs.

There may be prodromal symptoms such as a mild diarrhea with some pain and restlessness, but as a rule the attack is abrupt. It resembles Asiatic cholera symptomatically. From the beginning there is great prostration with nausea, vomiting and high fever. The vomit is first blood that may be in the stomach, followed by mucus, bile and quantities of serum. The bowel discharges, first fecal, rapidly become watery and of a greenish color, with a stale musty odor, and are frequent and large in quantity. The great loss of fluid is followed by great and rapid

loss in weight. Coma, or a semicomatose condition, develops early, and is usually persistent until death. There may be convulsion immediately preceding death. While the skin surface may be cold to the touch, it is frequently found that the rectal temperature is very high. In case of recovery the diarrhoea ceases gradually, the stools become more solid and there is a cessation of the vomiting and other symptoms. The recovery is usually slow.

The diagnosis is of easy determination, as the symptoms are characteristic of the condition, no other disease, other than Asiatic cholera carrying the same or similar symptoms. Under the ordinary treatment, such as has been employed generation after generation, the prognosis is bad, but it has been found that under the "clean out, clean up and keep clean" system, it is not a disease to be feared, as many recoveries are reported when this method is followed.

We will consider only the latter line of treatment at this time, it having been followed by success in numerous cases. When the case is first seen calomel 1-20 grain every half hour until six doses have been given, or until the nausea and vomiting have ceased, followed by the alkaline syrup of rhubarb, to which has been added 10 grains of sodium sulphocarbolate to the ounce, dose a teaspoonful every two hours. If this is not followed by a change for the better, or if the discharges become choleric, chemically pure zinc sulphocarbolate, grain 1-6 to grains 2, every hour until the acute symptoms are overcome and the conditions become normal. Care should be taken to use only a chemically pure zinc salt, otherwise vomiting will be increased, or is liable to follow, if not already present. Brandy and champagne have been suggested as stimulants, but glonoin, with small doses of strychnine are preferable. When the temperature is high, aconitine in combination with cactin or digitalin, to fortify the heart, is indicated. Excessive peristalsis and vomiting are relieved by full hypodermic of atropine. Atropine is also useful to sustain the action of the glonoin and strychnine. Copper arsenate in dose of 1-1000 grain every one to two hours is also effective as an intestinal antiseptic and astringent. Where the zinc sulpho-

carbolate, even in the purest form, acts as an irritant, the following may be substituted:

Zinc Sulphocarbolate	gr. 1-2
Calcium Sulphocarbolate	gr. 1
Sodium Sulphocarbolate	gr. 3 1-2
Bismuth Salicylate	gr. 1-4
Menthol, q. s. to flavor.	

The writer has found this combination to be very effective and readily retained, producing little, if any, irritation. If there is any considerable pain, the following combination will invariably give relief:

Nickel Bromide	gr. 1-134
Codeine Sulphate	gr. 1-67
Powdered Ipecac	gr. 1-134
Lithium Carbonate	gr. 1-25
Oil of Anise	m. 1-134
Saccharin, q. s. to sweeten.	

This is made up in the form of either tablet or granule and the dose is one or two every fifteen to thirty minutes, to effect. The dose of the combined sulphocarbolates is one tablet, or a corresponding amount of powder, every one to two hours, according to indications. Under this system of treatment very few cases terminate fatally, in fact recoveries are very prompt, so prompt in fact in some cases as to question the diagnosis. Many physicians employing this system claim that they never see a pronounced case of cholera infantum, owing to the early relief of the urgent symptoms. If this line of treatment is followed carefully and the remedies are pushed to full effect it will not be necessary to administer narcotics, in fact they are contraindicated in such cases, and their use has, without doubt, been followed by a high percentage of mortality. Morphine locks up the eliminative organs and acts as a synergist to the toxins by assisting in their retention. It should not be given in any case. Copper arsenate may be administered at much more frequent intervals than cited above, 1-3000 to 1-1000 grain every ten minutes to half hour, if necessary, but the writer has found 1-1000 grain at hourly intervals to be very effective. The diet should consist of barley broth and rice water at first, then the juice of fresh, sound fruits. Milk should be dropped absolutely. After a week, meat broths or predigested foods, with a gradual resumption of ordinary diet as convalescence is established.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

SECTION ON PEDIATRICS.

MEETING HELD SEPT. 22, 1909.

DR. W. D. LUDLUM IN THE CHAIR.

PAPER:—Dystrophic Conditions of Infancy and Childhood. By Alexander Spingarn, M. D. [This paper appears in this issue].

DISCUSSION.

Dr. Louria called attention to the fact that all the cases presented by Dr. Spingarn were either Russian or of Russian descent. As Dr. Louria had practised in Moscow for some time, he wished to say that these dystrophic conditions were common there. He was inclined to attribute this to the ease with which syphilis was acquired by infants in Russia. The custom of farming out their children to be brought up by wet nurses of the poorer classes is widely followed in Russia. The children of the well-to-do were often, and indeed usually, given into the charge of a wet nurse, who kept them until they were from three to six or seven years old. Many of the wet nurses transmitted syphilis to the children. In some cases, there were grave doubts as to whether the right child was returned to the parents in the end. Dr. Louria thinks that many cases such as Dr. Spingarn presented had a luetic taint, which caused some or all of the symptoms.

Dr. Kerr said that there were at present too many classifications of dystrophics, and too many classes in each classification. Every case shown this evening, except the cretin, could be variously diagnosed, and ten men would probably make seven or eight different diseases out of each of them. We need some genius to classify and reconcile our diagnoses, and to point out one or two absolutely pathognomonic signs of each disease.

Dr. Ager said that infantilism is a very indefinite term, and is differently understood by different men. It is correctly used to denote the absence of the secondary sexual development. *Dr. Herter's* experiments on physically undeveloped children were interesting. *Herter* had found a theory, as the result of his work, that various intestinal bacteria were at the bottom of the trouble, and *Holt* had had some success in treating these cases with lactated milk, etc.

Dr. Read agreed with *Dr. Spingarn* in the main, but he thought that the influence of syphilis should not be overlooked. One of *Dr. Spingarn's* cases, (the small infant, called a case of chondrodystrophy), *Dr. Read* believed was merely a case of congenital syphilis. *Dr. Spingarn's* own data showed enough to warrant the diagnosis of syphilis. Hence, whatever else the infant had, it should be treated vigorously for lues. *Dr. Read* thought that we should look to embryology to solve many of the problems of dystrophies. Our hope for a correct classification was entirely in this direction.

Dr. Spingarn, in closing, said that the case *Dr. Read* spoke of was being treated for syphilis. In general, the important point to be remembered about these cases was this:—Do not call every dwarfed, stunted or misshapen infant a case of rickets. Try to find out their true place in medicine and treat them properly. The purpose of the paper is to bring out the fact that there are numerous dystrophic conditions awaiting our discovery, and needing exhaustive study.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY.*

Meeting of May 27, 28 and 29, 1909, Held in Lenox, Mass.

The President, Charles P. Putnam, M. D., of Boston, in the Chair.

INFLUENZA: THE PART IT PLAYS IN HOSPITAL INFECTIONS; THE VALUE OF CULTURES AS A MEANS OF DIAGNOSIS; INFLUENZA CARRIERS.

Dr. L. Emmett Holt, New York, referred to the frequency with which infections occurred in hospitals, and said that it was his opinion that influenza was responsible for a large number of them, and an attempt had been made to see how much a part it did play, and experiments had been undertaken since January 1, to determine what value could be attached to throat cultures as a means of diagnosis. Cultures were taken of the throats of all the inmates of the Babies' Hospital including the nurses and resident physicians who came in contact with the children. It was known that the bacillus of influenza only grew in media containing hemoglobin. Much of the success depended upon the manner of taking the culture. The bacilli were difficult to obtain unless bronchial secretions were present. The child was made to cough by irritating the pharynx with a piece of cotton on an artery clamp. There were 312 cultures taken from 198 persons. Cultures were positive in eighty-five, suspected in forty-two, nonsuspected in forty-three, and among these were fifteen nurses. Cultures were negative in 112, suspected in sixteen, nonsuspected in ninety-seven, and among these were twenty-eight nurses. Among 110 positive influenza, the pneumococci were positive in fifty-three, and negative in fifty-seven. Among 202 negative influenza, the pneumococci were positive in fifty-six and negative in 146.

*Continued from page 548, October issue.

Among forty-seven routine autopsies the following was noted: Marasmus and terminal pneumonia, eight cases; influenza bacilli positive in two, negative in six, the pneumococci positive in one, negative in seven. Acute bronchopneumonia, fourteen cases; the influenza bacilli positive in two, negative in six; the pneumococci positive in one, negative in seven. Acute bronchitis, two cases; the influenza bacilli positive in two, negative in none; the pneumococci positive in one, negative in one. In tuberculosis of the brain and lungs, eight had meningitis. Pulmonary tuberculosis, ten cases; influenza bacilli positive in three, negative in seven; pneumococci positive in two, negative in eight. Nontuberculous disease, thirteen cases; influenza bacilli positive in one, negative in twelve; pneumococci positive in four, negative in nine. Of 140 cases suspected, forty-three gave positive and ninety-seven negative. Among the cases that were negative at the first culture, eleven were positive afterward. Only sixteen healthy individuals showed the presence of the influenza bacillus; eight of these showed the pneumococci, while eight did not; four had Klebs-Loeffler bacilli. Twenty-eight healthy persons showed neither the pneumococcus nor the influenza bacilli. When an otitis media was present, there was great danger of looking upon it as the principal disease. In no case was the organism recovered from the heart's blood. In conclusion he said that a great deal of value might be attached to the sputum as a means of diagnosis, and much depended upon the technic employed in taking the cultures. The influenza bacillus persisted in the bronchial secretions. The cultures showed the association of the influenza bacillus with the pneumococcus in a great number of the patients. Influenza bacillus was a large factor in house infections and was hard to deal with.

Dr. Rotch said that there was yet much to be learned in regard to this disease, and one was apt to make a diagnosis before he should. This was a difficult disease to deal with. *Dr. Rotch* referred to the work that was being carried on at the Massachusetts General Hospital in Boston; they recognized that there was a clinical influenza and the work there seemed to show that the supposed organism of influenza was not the cause of the

disease; that was, it was not the cause of influenza any more than were other organisms. They found that 25 per cent. of the cases of common cough or cold in the interepidemic periods, without the clinical symptoms of influenza, showed the influenza bacillus in large numbers. They concluded that the influenza bacillus, so-called, must be excluded as a cause of clinical influenza. They had no more right to say that this organism had any more to do with influenza, from an etiological standpoint, than the staphylococcus, pneumococcus, or other pyogenic cocci. This was the result of their investigations; whether these would be upheld later he did not know.

Dr. Abt said that in a hospital with which he was connected in Chicago now and then there would appear an epidemic of diphtheria and its origin could not be traced. One of the dispensary doctors took a culture of everybody's throat and he found that one nurse, a little blonde, had a great number of bacilli in her throat and was responsible for these outbreaks of diphtheria. She was a dangerous person to have around, and so was sent to the isolation department. Day after day cultures were made and she reacted positively. Later she was taken back into the wards, and, another outbreak occurring, she was sent away. The epidemics then ceased.

Dr. Thomas S. Southworth, New York, said that there seemed to be a diversity of opinion as to the exact organism responsible for this condition, but it was certainly a fact that there existed a clinical entity which by exclusion they were in the habit of calling influenza. During the months of January, February, and March they had had a series of ward epidemics of what they called influenza; the peculiar temperatures that were recorded during that time were apparently due to the ward epidemics going from child to child; they were accompanied, too, by a large number of ear cases which was also confirmatory of the diagnoses made. A great many of these temperatures were very striking in the way in which they fell after paracentesis was performed. This led him to believe that a good many of these cases of rises in the temperature during the prolonged attacks of influenza were due to the otitic involvement. There was

no doubt regarding the infectiousness of the cases. Influenza should be considered as much an infectious disease as many of the minor exanthemata and the cases isolated. This fact must be recognized in the future if they are to save these babies from serious complications.

Dr. Henry L. K. Shaw, Albany, referred to an epidemic of influenza that occurred at St. Margaret's home four years ago; two babies died and the report came in that the deaths were due to influenza. The thought occurred to him to obtain cultures and try to demonstrate the bacillus. The pathologist told him that they could not be obtained from the nasal secretion, but that they should try to get them from the blood. The question then arose, How could they get them from the blood? He finally found an expedient. When the baby cried, the temporal vein became very prominent; then a needle was inserted and the blood obtained. They found that many of the cases called influenza were not influenza at all. He reported a case of influenza meningitis.

Dr. Churchill reported a case of influenza meningitis occurring in twins four or five days old. They were suddenly taken sick, but with no signs of a typical meningitis. There was nothing to account for the condition of affairs, but twenty-four hours before death there appeared the characteristic symptoms of meningitis. At autopsy a very virulent meningitis was found. The cultures showed a perfect growth of the influenza bacillus.

PNEUMOCOCCIC INFECTION.

Dr. Walter Lester Carr, New York, said that the pneumococcus might be recovered from the blood in croupous pneumonia and similar affections, and that much of the grip and gripal affections were in fact due to the pneumococcus. He gave a review of the literature in which pneumococcic infection occurred in various organs and tissues of the body. He reported one case, a child of eighteen months, with pneumonia which was followed by a very marked invasion of the conjunctiva; there was a very marked pneumococcic infection and recovery followed without any trouble. But the child at last succumbed because of an attack of meningitis six months after the pneumonia.

REPORT OF A CASE OF LONG-STANDING EMPYEMA, WITH A NOTE ON
RACE AS A PREDISPOSING FACTOR IN THE OCCURRENCE
OF EMPYEMA.

Dr. Alfred Hand, Jr., Philadelphia, reported the case of a girl, three and a half years old, who weighed eight pounds and fourteen ounces. From the history given it seems that empyema had existed for about twenty months. A study of the statistics of the Children's Hospital of Philadelphia for ten years showed that the number of cases of empyema among the white children was about 10 per cent. of the pneumonias; among the colored children empyema occurred in less than 1 per cent. of the pneumonias. There were three cases of empyema among the colored race, but none of them showed the metapneumonic form. In the case reported, resection of a rib was made under cocaine, and one-quarter of an inch of thickened pleura penetrated. About one ounce of greenish pus was evacuated. The child succumbed one month later during the heated term. It was interesting to note that there were 852 cases of pneumonia among the white children, and ninety-nine of them had empyema, more than 11 per cent. Whereas among 205 pneumonia cases occurring in colored children, only two had empyema, a percentage of less than 1 per cent.

RETROSPECT OF CURRENT PEDIATRIC LITERATURE.

UNDER THE EDITORSHIP OF KARL H. GOLDSTONE, M. D.,

Physician to the Children's Clinic, Mt. Sinai Hospital, New York.

ANATOMY OF THE INFANTILE PHARYNX.

William C. Braislin goes into a study of the anatomy of the infantile pharynx with special reference to the Eustachian tube (*Transactions of the American Otological Society*, 1909), and accompanies his text by some very excellent reproductions of casts, the whole being to demonstrate the considerable difference in relative size and shape between the pharyngeal cavity of infancy and of adult life. An examination of the pharynx of the newborn reveals a cavity with its long axis in the horizontal rather than the vertical plane as in the adult. The long diameter of the infantile pharynx is antero-posterior rather than supero-inferior. The cavity is low and elongated, wide and flattened from above downwards. The roof or vault of the infantile pharynx is nearly rectangular. On its surface is distributed the pad of lymphoid glandular tissue arranged in rather prominent folds. The folds diverge as from a center; the outer ones to the full width of the roof and again converge toward the posterior edge of the nasal septum. The most conspicuous landmarks are the prominences of the cartilaginous extremities of the Eustachian tubes which stand out sharply from the sidewalls, separating the depression of the pharyngeal mouth of the tube in front from that of the longer, more extensive and equally deep depression forming the fossa of Rosemuller. The writer then proceeds to theorize on the causation of the frequency of hypertrophy of the lymphoid tissue in early life, basing his assertions on the foregoing anatomy, stating that the inferior development of the nasal cavities may be responsible for a transference of the greater relative respiratory importance upon the pharyngeal tissues. The author believes that in children under five years a Gottstein curette is preferable to any other instrument.

PYELITIS IN CHILDREN

In the *Journal of the Medical Society of New Jersey*, Oct., 1909, Louis C. Agar presents a consideration of pyelitis and allied conditions in children, and states that infections along the urinary tract are very frequent in children, and that they are overlooked by physicians. The urine of infants is almost never examined. He advises the use of a small bottle with a neck just large enough to fit the penis and for females a large mouthed bottle held up by the diaper until a sample is obtained. Agar cites three cases which show the folly of relying upon anything else than the doctor's own examination, the first being one of rectal haemorrhage due to polypus, the second a case of colon bacillus pyelonephritis with a supposed hemorrhage from the rectum which in truth came from the kidney with the urine, the third case of supposed infantile menstruation which proved to be a pyelitis with haematuria. The author vouchsafes the opinion that haematuria is rare in pyelitis, and that in the large majority of cases there is nothing whatever to call attention to the location of the infection. As a result the symptoms are likely to be attributed to some other infection. Pyelitis is very likely to be mistaken for pneumonia; the assumption being based on the occurrence of shallow, rapid respirations which occur in both named diseases. Owing to the high temperature pyelitis may be mistaken for meningitis. Malaria may be the diagnosis in many cases of pyelitis as definite chills occur in both diseases. Pyelitis may also be mistaken for typhoid fever or tuberculosis. Agar mentions a peculiar type of pyelitis due to the colon bacillus which is said to be introduced with the feces which may be rubbed into the urethra and is thus an ascending infection. The symptoms of pyelitis are: fever, which is frequently absent, marked pallor, anorexia and prostration. The fever is usually high, 104-106°. Disturbances of urination in pyelitis are rather an exception. Chills followed by sweats may appear. The disease is self limited in milder cases, but severe cases may be fatal. The diagnosis is made in two ways, by examination of the urine and by exclusion of gastroenteric and respiratory conditions. The urine is

turbid, the reaction is acid, even with marked cystitis; albumin is present. The specific gravity is about normal, 1,010. Microscopic examination shows a large amount of pus and bacteria usually the colon bacillus and red cells. Treatment—the author seems to think that urotropin is of great value. He advises the giving of a large amount of water.

TYPHOID FEVER IN CHILD OF EIGHTEEN MONTHS.

Neuman, in the *Zentralblatt für Kinderheilkünder*, October, 1909, relates an interesting case of typhoid fever in a child of one and a half year's age. The history is as follows: Called to see case June 14th; child had been coughing and sneezing for a week and was kept in bed for two days, but was allowed to romp about again. When first seen the case looked like one of simple catarrh. The throat was red and small punctate hemorrhages appeared on the lips. June 15th, temp. 38.5 C.; same condition. June 16th, temp. 39.3; child was restless and refused food; the skin was red, liver and spleen not felt. The mother said the stools were thin and appeared like cheese. In the evening the temperature was 40.2 and the child had a convulsion. Chloroform was administered. June 17, temp. 40 C. The spleen appeared enlarged. June 18, temperature same; small red spots appear on the skin and resemble that of a beginning exanthem, by evening the rash appeared over the whole body and had some of the characteristics of scarlet fever eruption. June 19, rash was fading but its nature was still uncertain. The child was obstinately constipated. June 20, temp. 40 C. The child had another convulsion. From June 21st to 24th the morning temperature was 38 C. No change in evening temperature. The child was greatly depressed. June 22nd the case seemed perplexing to the author, not having been able to account for the continuous temperature, enlarged spleen and the rash until the 27th when the report came with the result of the blood examination. No typhoid bacilli were found but the Widal reaction was positive. The urine showed no sugar or albumin and the Diazo reaction was negative. June 25th, temperature was 37.4. On the following night temperature

was very high. June 26th, child was fever free but the bowels were obstinately constipated. To recapitulate: we have a child of eighteen months who in a period of two weeks developed quite suddenly a catarrh with a red throat, a universal but indefinite eruption, fever with no definite cause, a swelling of the spleen, almost complete locking of the bowels, and a positive Widal. The author assumes the case one of a typical typhoid.

SALT FEVER.

In the *Münchener Medizinische Wochenschrift* for Sept. 21, 1909, Friberger relates the observations of Meyer and Rietschl in producing fever in infants given subcutaneously sodium chloride. The author cited believes the salt fever to be accidental due to the chemical trauma of subcutaneous injection, because he has been unable to note any rise in temperature in the cases where the salt was given by mouth. After such an injection into the subcutaneous tissue there were found in this tissue lymphocytes, large mononuclear and a few polymorphonuclear cells. Friberger's results were not in accord with those of the Berlin investigators.

LUMBAR PUNCTURE FOR THE RELIEF OF CONVULSION IN PERTUSSIS.

Eckert, assistant to Tuebner in Berlin, relates the results of his experiments with lumbar puncture to prevent eclamptic seizures in attacks of pertussis (*Münch. mediz. Woch.*, Aug. 3, 1909). The four patients treated were typical cases of pertussis convulsions, the ages being eleven to seventeen months. In one case there were as many as forty-eight seizures in 24 hours. 5 to 25 c.c. of spinal fluid were withdrawn by lumbar puncture. The fluid withdrawn was clear and showed no microorganisms. The intraspinal pressure varied from 150 m.m. to 330 m.m. After the puncture the pressure registered in all four cases 80 m.m.

Results. In two of the cases, the convulsions ceased entirely. In one case, four or five convulsions occurred but they then stopped. In the fourth case, the puncture had to be repeated after which convulsions occurred but three times and then ceased.

All four cases made an uninterrupted recovery from the whooping cough. Eckert believed the convulsions of pertussis to be due to cerebral oedema caused by congestion and brought on by the strong expiratory spasm in coughing. The lumbar puncture seemed to act by overcoming the intracranial pressure, enough being removed to relieve, but not enough to entirely overcome the oedema. The meninges being free of pressure naturally absorbed the remaining fluid, the portals being the meningeal veins. So-called "souse" baths aid in the absorption by causing sudden inspiratory spasm which in turn causes suction in the venous system.

ADDISON'S DISEASE IN INFANCY.

S. Finkelstein (*Thèse de Paris*, 1900) writes of Addison's disease of infancy. The condition, according to the author, is not rare, occurring in sucklings as well as in later months. Most cases are due to tuberculosis of the adrenals, although some cases have been associated with the perfectly normal glands. The most important symptom is pigmentation of the skin, although the author calls attention to the fact that pigmentation may be the result of long continued diarrhoea in infants. Other symptoms are general depression and extreme weakness, diarrhoea and vomiting, frequent convulsions and chloroform seizures. The pulse is weak and irregular, the blood pressure greatly increased. The disease is always fatal, dissolution being due to weakness or to some intercurrent disease, or to general tuberculosis. Surgical intervention has been resorted to but has failed to meet the desired end.

THE DIFFERENCES BETWEEN THE SEXES IN SPEECH DEVELOPMENT.

Ernest Jones in the *British Journal of Children's Diseases* for Sept., 1909, discusses this topic and states that the articulatory capacity develops in girls earlier and better than in boys. He cannot explain this fact, but adduces the statement that some more recondite factor than mere muscular dexterity might be at work. Girls show a much smaller tendency than boys to stammering and other defects in fluency. Jones bases his asser-

tion on examination of 450 normal school children, all observations being made personally. Fifty children from each school were examined, the sexes being equally represented. The inquiry was limited to the consonantal sound; 227 of these were tested in every case, and marks allotted according to a conventional notation. 132 of the sounds tested were better enumerated by the girl, 63 by the boy. The forms of speech are of two kinds: one, linguo-dentals, and two, sybilants. The girls excelled in group one. The linguo-dentals are of two kinds: a, voiceless, and b, voiced *th*. The girls exceeded the boys five to one. Group No. 2 contains four sybilants: *s*, *z*, *sh* and *zh*, the girls excelled with 65, the boys with only four. The greatest differences between the sexes here was found with *ng* where nearly twice as many defects occurred with the girls as with the boys. The boys also excelled in the explosive linguo-palatals, like *dn*, *kn*, *gl*. Further investigations were made with reference to nasal obstruction and deafness, the latter occurring to the same extent in both sexes. Jones claims that girls are more apt in lip reading, (a science taught to the deaf), than are boys, and by this he accounts for the superiority of girls in articulatory capacity. This is due to the girls watching the mouths of their elders more calmly and with less embarrassment, as it is a known fact that boys before the ages of nine or ten, are more awkward and shy and abashed than girls. The author believes this is due to a feeling of intense shame or even guilt that boys experience as a consequence of the nature of their early sexual emotions.

AEROPHAGIC INFANTILE VOMITING.

A. Lesage writes of vomiting in an aerophagic infant and gastric radioscopy (*La clinique enfant*, Jan. 1, 1909), and says that the normal nursling is aerophagic, and a gaseous distension that follows causes vomiting. In the act of feeding, the air being swallowed in large quantities, the stomach necessarily contains a small amount of milk and a large quantity of air. The air swallowed during the feeding issues from the stomach inversely to the milk which enters. The author states that spasm of the cardia is due to this aerophagy, and the distension of the

ingested air causes vomiting. Radioscopy was resorted to and these facts proven, and it has opened up a new field of thought. The author advises feeding at longer intervals.

IRREDUCIBLE INTUSSUSCEPTION IN INFANCY.

Rutherford details the treatment of irreducible intussusception in the infant by ilio-colic anastomosis (*Br. Jour. Children's Dis.*, Sept, 1909). Three methods are mentioned: one, the formation of an artificial anus; two, resection; three, excision by lateral anastomosis. In the first method an opening is made in the small intestine, a loop low down being selected to the extent of four or five inches through an opening in the flank, tied to a glass tube, and after emptying the adjacent coils, the wound of exploration is closed in the middle line. This is, of course, a temporary measure, as the continuity of the bowel will have to be restored. Resection, according to the author, is almost always a disastrous measure. The last named method, lateral anastomosis, was first practised by Senn in 1891, and later operators have had a great deal of success with this procedure. Rutherford claims for it that *a*, it immediately restores the continuity of the bowel, and permits closure of the abdomen, *b*, that it is simple and expeditious as compared with resection.

HOW SCARLATINA IS TRANSMITTED.*

We no longer consider desquamation the source of infection in scarlatina, but pay particular attention to the secretions of the nose, the throat and the ears. As long as these organs are not clean and healthy, we should consider the children dangerous. It is necessary to disinfect patients in the best possible manner. The disinfection of the locality is less important. The microbes of scarlatina, like those of other contagious diseases, do not attach themselves to the walls, floors, ceilings, etc. Microbes are carried by the patient and persons who approach the patient and live in their secretions and excretions, and while we should disinfect the objects soiled by them, great care should be applied to the disinfection of the nasal, pharyngeal, buccal and auricular

*Comby. *Arch. de medecine des enfants*, n°8.

cavities. Rigorous and prolonged isolation should be prescribed and great cleanliness; the patient should wear blouses and should wash the hands and face whenever they may have become contaminated. Antiseptic precautions should be taken with regard to the linen, and all objects which come in contact with the patient; boiling water and weak soda solutions suffice generally, but vapor under pressure should be used in the treatment of clothing, mattresses, etc. It is useless to consider the value of pulverizing with corrosive sublimate solutions, but we must avail ourselves of air, sun and water in abundance. Rigorous isolation of the patients in our hospitals is most important and the attendants and the visiting physicians should take every precaution.

These are the best prophylactic measures in the treatment of scarlatina.

ISOLATION OF CONTAGIOUS DISEASES IN CHILDREN'S HOSPITALS.

Baumel of Montpellier before the Medical Congress at Budapest insisted on the importance of isolation of children in contagious diseases of infancy on account of the activity of absorption, circulation and assimilation at this period of life.

He remarked that he insisted on calling attention to the faults which are made from a diagnostic standpoint, during the transportation of the patient from his domicile to the contagious wards of the hospital or pavilion, and also to the disinfection and antiseptic precautions taken in the hospital. From the standpoint of isolation itself, Baumel remarks the improvement made by an interchangeable pavilion, model of the Pasteur Hospital, where each patient is isolated or can be so isolated. He also enumerated the various acute and chronic diseases which should be isolated in pediatry, with special reference to the medical attendants and orderly.

From a philanthropic standpoint, Baumel considers that a father or mother has the right to visit a sick child in the infectious wards, if they insist upon it, and thinks that it is a mistake to make patients leave their homes in winter at night when they can be brought there in the daytime together with bedding which can then be immediately disinfected.

The author closed expressing a wish for improved isolation and better instruction of those in charge of such isolation hospitals.

TUBERCULOSIS OF SUCKLINGS.

Barbier of Paris considers that practically tuberculosis of infants is connected with the parents, more especially the mother. When such a child is born and lives some time, it may present symptoms of ill-health without showing tuberculous granulations at autopsy. This is the atypical tuberculosis; where the granulations are apparent at the autopsy, it is the typical tuberculosis.

Atypical tuberculosis shows itself not only as the direct effect of heredity, but it can be also a manifestation of acquired tuberculosis, although this has not been demonstrated. In this form, children are born feeble and become atrophic; their nutrition is poor; there is an arrest in development; digestive disturbances; there is imperfect nutrition; poor function of the glandular system; tenacious dyspeptic troubles of hepatic origin predominate. We find in these subjects, anatomical changes in the degeneration of the viscera, particularly of the liver; hypoplasia; lesions of the osseous system, the marrow of the bones, etc. Mortality in such infants is very high and their fragility is great. In respect to accidental infections, particularly those of the digestive organs, malformations and monstrosities are also observed. In the lungs, tuberculosis appears to manifest itself in certain cases uniquely by lesions of splenization which are found identical in the characteristics shown to be present in children who have succumbed with typical tuberculosis.

In typical tuberculosis of infants, one may find in the same subject all anatomical forms of macroscopic tuberculosis with almost constant pneumo-ganglionic caseous or fibro-caseous lesions.

From a practical standpoint, especially in the presence of the fact that tuberculosis is often difficult to diagnose it is frequent up to one year. Taking into account the number of tuberculous lesions found in 100 autopsies and the infant mortality which occurs at this age, one finds that out of a thousand infants from zero to one year, typical tuberculosis causes the death of from 30

to 60, according to statistics, out of a total mortality of 200. From one to two years, it only reaches 12. These figures show that tuberculosis is severe in infants during the first year of their existence, and that we should bear in mind that mortality from this cause is very high in proportion to the general mortality. Clinically, it presents itself in various aspects, based on common symptoms, atrophy with tenacious dyspeptic phenomena and relapses.

These conditions one observes with the acute forms of generalized febrile infections and may be classified as follows:

1st. Tuberculous bacillemie.

2nd. Granulations and meningitis (which cannot be separated at this age), in which the symptoms are usually nervous depression, somnolence, and are explained by hydrocephalie, etc.

3rd. Relapses of broncho-pneumonia, of which the tuberculous nature has not been recognized in the beginning.

4th. In the sub-acute and chronic forms, tuberculosis is marked by atrophy, accompanying tenacious dyspeptic troubles. This 4th form must be classified apart particularly because it frequently accompanies the other forms. Besides, we have the clinical types in which pulmonary lesions are most marked. They are:

5th. The ulcerated form, leading to pulmonary cavities with uncertain diagnostic symptoms, which are due to a softening of the initial chancre or to the caseous lesions which are able to destroy one lobe of the lung by true caseous pneumonia of this lobe.

6th. The form with pulmonary sclerosis and bronchial dilatation in which the size of the cavities are marked and present the peculiarity of being inconstant and mobile.

7th. Tuberculosis of multiple localizations as tuberculosis of the viscera, brain, the glands and abscesses of the skin, which usually terminate in meningitis.

Finally, with syphilis, tuberculosis of the parents may be one of the direct causes or not, of the mortality during the first years of infancy and of the depopulation and degeneration of the races.—*La Clinique Infantile*, Sept. 15th, 1909.

BOOK REVIEWS.

CHILDREN IN HEALTH AND DISEASE.—A study of child life by David Forsyth, M. D., D. Sc., physician to the Evelina Hospital for Sick Children, assistant physician and joint pathologist, Charing Cross Hospital. 336 pages, cloth bindings. Net \$3.00. Philadelphia, Pennsylvania: P. Blakiston's Son & Co., 1909.

The author believes there is a need for a book dealing with child-life from a scientific standpoint, including education, school, diseases, etc. In this volume he presents a comprehensive study of the whole subject. The first two chapters are devoted to the physiology of childhood, the second two chapters elucidate the psychology of children, then follow three chapters, on the hygiene of schools and school life, medical aspects of school life, the medical inspection and supervision of school children. The next two chapters deal with the training of children, idiots and feeble minded children. Infant mortality and conditions of infant life are considered in the next two chapters. The remaining four chapters are devoted to children's diseases, the examination of infants and children, the diagnosis of diseases of children, and some points in the treatment of sick children.

The author addresses himself primarily to medical readers in this work, but at the same time some of the subjects dealt with are of equal value to teachers, educators and others. The work fills a gap heretofore not covered by the usual text book on the subject of school life, education, etc.

GOLDEN RULES OF PEDIATRICS.—By John Zahorsky, A. B., M. D., Clinical Professor of Pediatrics, Washington University Medical Department, St. Louis; Ex-president of the Bethesda Pediatric Society; Attending Physician to the Bethesda Foundlings Home; Member of the American Medical Association and of the St. Louis Academy of Medicine; Author of "Baby Incubators," with an introduction by E. W. Saunders, M. D., Professor of Diseases of Children and Clinical Midwifery, Washington University—Medical Department. 350 pages, cloth binding, price \$2.50. The C. V. Mosby Medical Book Co., St. Louis, Mo.

To Hippocrates, the father of medicine, may be given the credit for expressing the essential truths of medical science by aphorismic axioms, and since his day the aphoristic style has been more or less appreciated in enunciating the truths of medicine. Since the modern spirit of investigation and research have made the art of pediatrics depend on so many scientific inquiries, it has become necessary to state essential truths in the most concise form. This, the author has done in this present volume, presenting in the most concise manner his observations and precepts on the science and art of pediatrics, giving practical rules for diagnosis, prognosis, etiology, and the essentials of infant feeding and the principles of scientific treatment. Dr. Zahorsky's wide experience and thorough acquaintance with the ills of infancy and childhood, and with the best pediatric literature places him in the position to prepare a book of aphoristic pediatric truths which will serve a useful purpose, and we predict that the little work will be well received.

DORLAND'S AMERICAN ILLUSTRATED MEDICAL DICTIONARY.—A new and complete dictionary of terms in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, and kindred branches; with new and elaborate tables and many hand-

some illustrations. Fifth revised edition. By W. A. Newman Dorland, M. D. Large octavo of 876 pages, with 2,000 new terms. Flexible leather, \$4.50 net; indexed, \$5.00 net. 1909. W. B. Saunders Company, Philadelphia, London.

During the past ten years this dictionary has been reprinted and revised some fifteen times, which evinces its popularity. The author does not claim it to be an encyclopedia; but a dictionary, a concise word book with full definitions of the terms used in medicine and kindred branches and such collateral information as medical men generally would be likely to look for. Dr. Dorland has produced the happy medium between the large, unwieldy lexicon and the students' abridged dictionary, avoiding the disadvantages of each. The immediate success of this work is due to the features that distinguish it from other books of its kind. It gives a maximum of matter in a minimum of space and at the lowest possible cost. In this new edition the book has been thoroughly revised, and upwards of two thousand new terms that have appeared in recent medical literature have been added, thus bringing the book absolutely up to date. The book contains hundreds of terms not to be found in any other dictionary, over 100 original tables, and many handsome illustrations, a number in colors. Though it is practically unabridged, yet by the use of thin Bible paper and flexible Morocco binding it is only $1\frac{3}{4}$ inches thick. The result is a truly luxuriant specimen of book-making.





